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The Deepest Well in the World.

The St. Louis *Democrat* says:—"We published a statement made by the Louisville *Courier*, a few days ago, that the deepest well in the world was the artesian well of Messrs. Dupont, in that city—1,900 feet in depth. We beg leave to inform the *Courier* that the artesian well of Belcher & Bro's., in this city, is now 2,200 feet deep, being 300 feet deeper than that of Messrs. Dupont. It will be carried to a still greater depth, until such water as can be used for refining purposes, in the Messrs. Belcher & Bro's. sugar refinery, shall have been reached."

Artesian Wells in California.

A San Jose correspondent of the *Alta Californian*, writes as follows:—

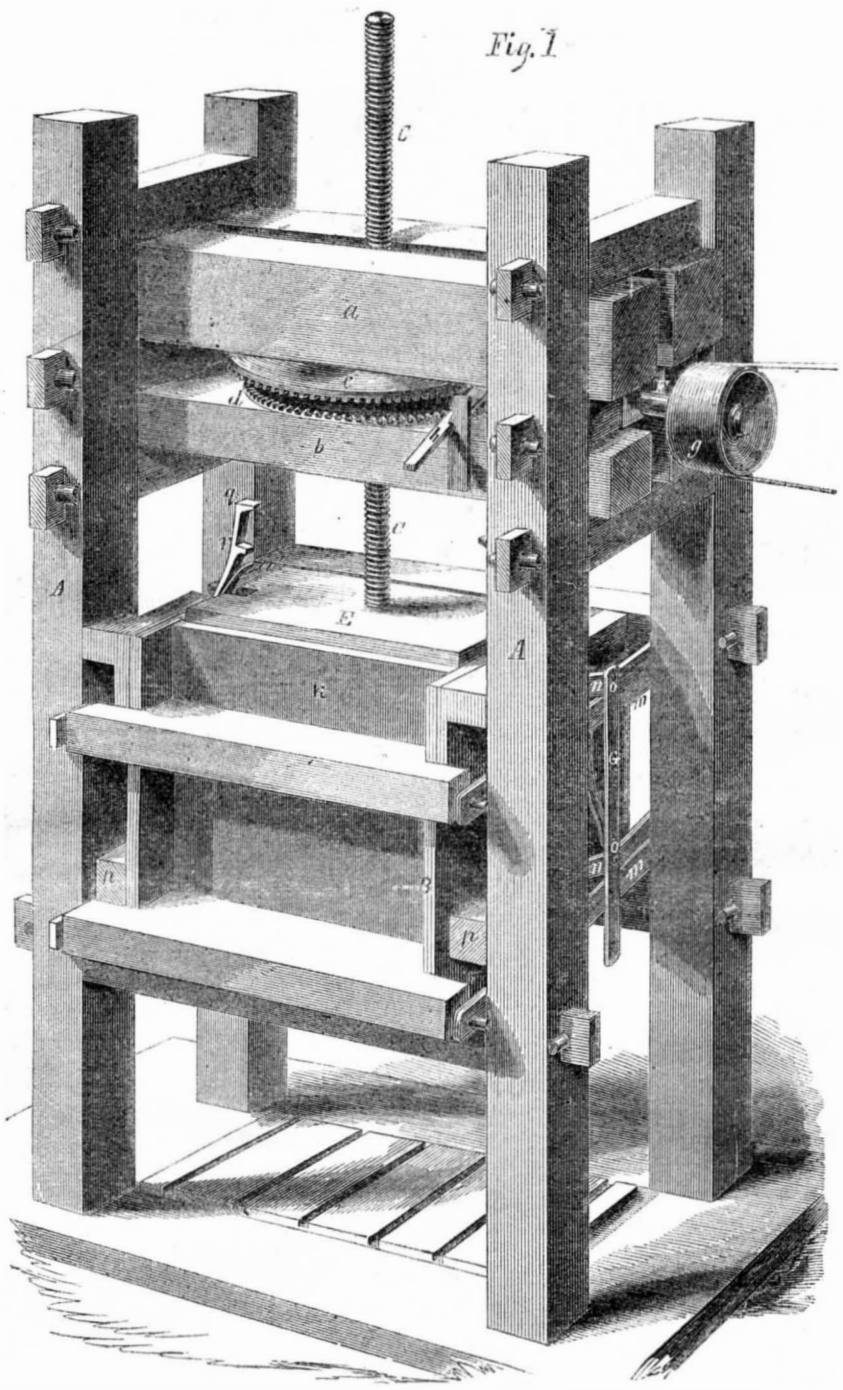
"I learn that there are in Santa Clara county over four hundred artesian wells, of an average depth of 150 feet. Ten or twelve of these are from 250 to 400 feet deep. These throw up jets some five feet in hight. From a pipe seven inches in diameter, one thousand gallons per minute are discharged. The deposits found in these wells are significant of the antiquity of the country. At a depth of 200 feet a gravelly cement is found, after which is discovered a gray yellow sand, in which water is generally encountered. At this depth have also been struck wood, coal, coral, bones, and in one well a piece of deer's horn was brought up at a distance of 140 feet below the surface of the ground. A redwood log was also bored into at a depth of 400 feet; and as far down as this in the bowels of the earth have been found the partial remains of animals."

Pump Valve.

A new and valuable modification of pump valves has been invented by Calvin and Geo. W. Woodward, of New York, which was patented this week. It consists in having the valve seats formed of brass or composition tubing fitted in circular holes made through the body of the pump, and having valves made in the form of a segment of a tube, and fitted within the tubing; the ends or axes of the valves being fitted in circular heads which are secured over the ends of the tubing by means of bolts. The advantages of this system are, that the tubes serve as bushes for the passages, and when the valve seats become worn, the tubes may be readily removed and replaced by new ones. The valves may also be constructed with greater facility and fitted perfectly on their seats without difficulty, for as they are segments of a tube they can be turned in a lathe, and the work consequently may be done very accurately. The ordinary valves require considerable labor in order to fit them perfectly, and expert or skilful workmen are required to ensure the work being properly done.

WITTING'S IMPROVED COTTON PRESS.

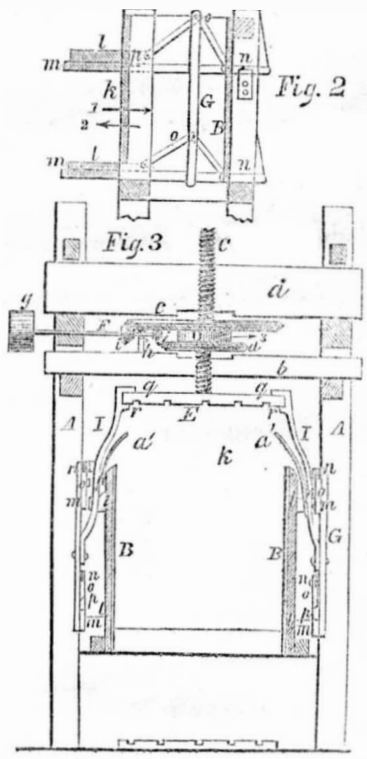
Fig. 1



This press can be operated by any convenient power, and is intended to compress the cotton both laterally and vertically by the same application of power. This end is attained by having one side of the press-box made movable, and arranged so that it may slide. This is done by means of toggles and slides, as will be seen by a reference to the illustrations, of which Fig. 1 is a perspective view of the press, Fig. 2 a side view of the connecting links, and Fig. 3 a vertical section of the press. Similar letters refer to the same parts in each.

A represents a suitable framing, in which a press-box, B, is secured, and C is a screw which passes vertically through the cross-ties, *a* and *b*, in the upper part of the framing; D is a nut fitted on the screw, C, between *a* and *b*, and provided with two bevel wheels, *c* and *d*, the upper wheel, *c*, being much larger than the lower one, *d*. Small friction rollers are interposed between the top of D and *a*, to lessen the friction when the press is in operation. F is a horizontal shaft placed in the upper portion of the framing, and having a driving wheel, *g*, on its outer end; the inner part of this shaft has its bearings in a lever, *h*, by which it may be raised or lowered, and, by means of pinions, *i* and *j* upon it can be thrown in gear with either the upper or lower wheel of the nut, D. To the lower end of the screw, *c*, is attached a follower, E. The side of the press-box, *k*, is made movable or allowed to slide laterally in either direction indicated by the arrows 1 and 2, (Fig. 2,) this side having horizontal bars, *l l*, attached to it, one at its upper, the other at its lower end. To each of the bars, *l l*, there is attached a metal bar, *m m*, these bars rest on guides or cross-pieces in the framing, and to the front part of each bar, *m*, one lever, *n*, of a toggle is pivoted, the other levers, *o*, of the toggle being pivoted to the framing as seen at *p*. There are toggles at each end of the press-box connected by a vertical bar, G. To each of these bars, G, a curved bar, I, is pivoted near its lower end, and these bars, I, have projections, *q* and *r*, upon them, the projections, *q*, being much longer than *r*, and their distance apart is equal to the thickness of the follower, E, as seen in Fig. 3.

The operation is as follows:—Suppose the follower, E, to be in an elevated state, the cotton is placed in the box, B, and motion is given the nut, D, by turning the pinion, *i*, in gear with the wheel, *c*, the projections *r* on I project underneath the ends of E, the nut D is now rotated in the direction of the arrow, 3, (Fig. 3) and the screw C and follower descend, pressing or forcing down the bars, G, which actuate the toggles and cause the side, *k*, of the press-box to be moved inward. As the bars, I I, descend, they are gradually forced outward, in consequence of springs, *a'*, that are attached to their inner sides, leaning against the ends of the press-box; and by the time the toggles are fully extended and the side, K, forced in the requisite distance, the bars, I I, are forced outward so far that the projections are beyond the ends of the followers. The follower then acts on the cotton, pressing it vertically, and when the cotton is sufficiently compressed in this direction, the bale is bound as usual, and the motion of D reversed, so that the follower, E, may ascend; and on its rising, it catches against the projec-



tions, *q*, which always extend over the edges or ends of the follower. The bars, I I, therefore, rise with the follower, and the side, K, is moved outwards by the toggles as indicated by arrow 1, in Fig. 2. The projections fall under the follower when it has reached its proper hight, and the press is again ready for operation.

This press is remarkably compact and strong, and by first exerting the pressure on the sides of the bale, gives a more close one than when the pressure of the follower alone is employed. It is the invention of F. W. Witting, of Twelve-mile, Coletto Gin, Texas, and any further information may be obtained by addressing him, care of C. Eckhardt, Yorktown, Texas. A patent was obtained for this press last week, as will be seen by referring to our List of Claims on another page.

More Sorgho Sugar.

We have received two very good samples of the above sugar from Samuel W. Fain, of Dandridge, Tennessee. They were obtained from the juice of the Chinese cane by Thomas Evans, of the same place.

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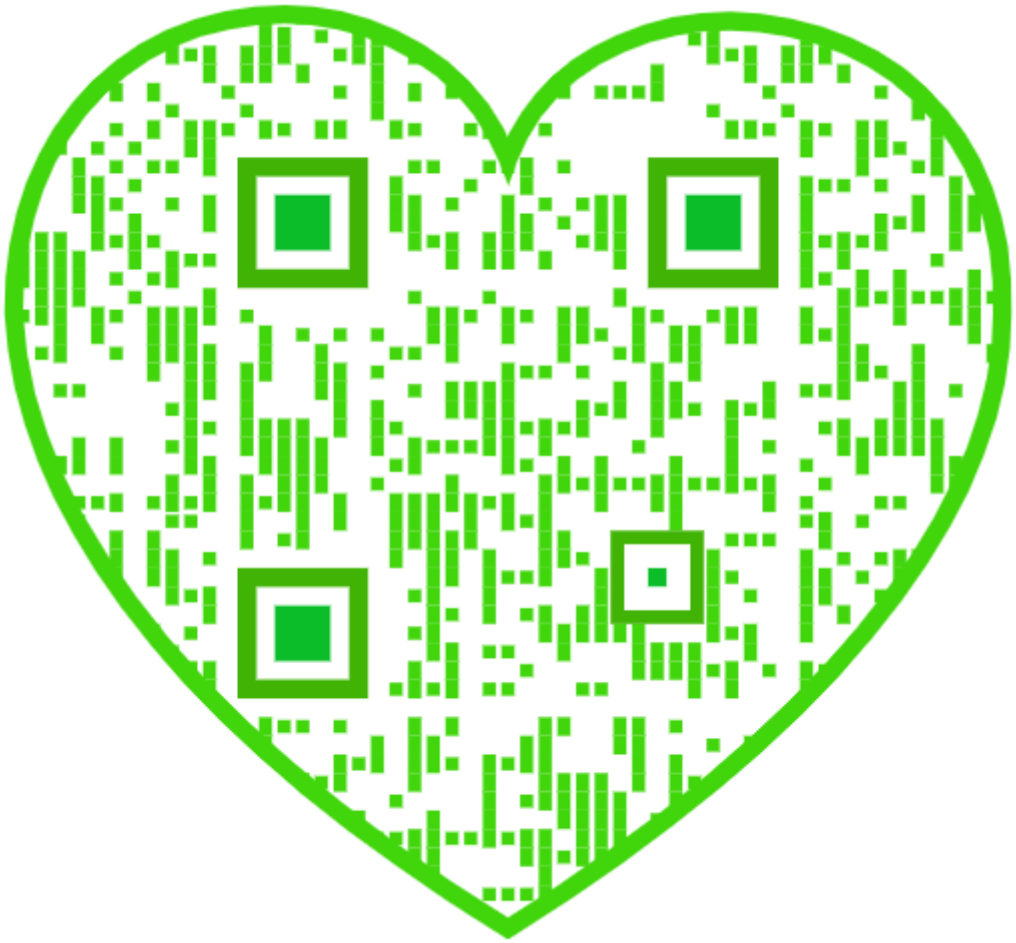

Issued from the United States Patent Office

FOR THE WEEK ENDING FEBRUARY 16, 1858.

[*Reported officially for the Scientific American.*]

MODE OF CONNECTING THE TRUCKS OF RAILWAY CARS—T. F. Allen, of Dyersville, Iowa: I claim connecting the trucks of railway cars with each other, and with the bodies of said cars, by means of the diagonal rods, a a, and the auxiliary tension rods, b b, or the equivalents of said rods, when combined and operating with each other, substantially in the manner and for the purpose set forth.

SIGNAL LANTERN—Daniel Ammen, U. S. Navy: I claim the peculiar construction and arrangement described of fixed colored screens or glasses to bowsprit cap lanterns, whereby only one color can be seen from any given point at the same time, which consists in the application of fixed red and green glasses or screens, indicating respectively "port" and "starboard" sides, when these colored glasses or screens form arcs of 90°, or thereabout, upon the cylinder of the lantern, and when separated by a white glass or screen forming an arc of 45° or thereabout, substantially as set forth.

SEEDING MACHINES—Chester Barton, of Savoy, Mass.: I do not claim the employment or use of the pressure rollers.

Nor do I claim the seed-distributing device, for these are old and well-known devices, and in common use.

But I claim the frame, B', provided with the seed-distributing device, and having the pressure rollers, N N, and driver's stand, O, attached, when said frame is connected with the axle, A, and the shaft or windlass, I, or its equivalent, and the whole arranged to operate substantially as and for the purpose set forth.

[This invention consists in attaching the frame which carries the seed-distributing device, and to which the pressure rollers and driver's seat are attached to the axle of the wheels, in such a way that the frame may be readily raised, when necessary, by the driver, and kept in an elevated position, so that the rollers, &c., will be free from the ground while the machine is being drawn from place to place. The weight of the driver also increases the pressure on the rollers, and tends to keep the machine in position when not elevated.]

CHURN—H. D. Baker, of Pittstown Corners, N. Y.: I claim operating the dash-rod, K, of the churn, L, through the medium of the oscillating chair, C, treadle, E, crank shaft, F, grooved wheel, G, and bar, H, connected with lever, I, it being understood that I do not claim, separately, any of the described parts, but the whole when combined and arranged to operate as and for the purpose set forth.

[By this invention the churn is operated by the tilting of a chair in which a person seats himself, and by rocking, churns the butter without any further trouble. It is highly ingenious.]

FILTERING APPARATUS—Charles Ballard, of Worcester, Mass.: I claim, first, Increasing the extent of the surface of the filtering medium by folding or supporting the folds, substantially as described.

Second, I claim the combination of the pipes, B and C, and heads having passages, as described, with the case, A, when constructed and operating as set forth.

ROLLER FOR WINDOW SHADE—J. B. Bailey, of New York City: I do not claim the spring, F, for the purpose of holding the roller in any position, as that has been before used and patented by Purchase Miles, of Hartford, Conn., improvements in window curtain rollers and fixtures, patented respectively March 3, 1857, and April 7, 1857.

Nor do I claim the endless band.

Nor do I claim the use of the india rubber as new, for the purpose of creating friction on a pulley, as that has been before known and used.

But I claim the application of an india rubber band, or equivalent substance, on the plane of the pulley at M, in combination with the endless band or cord, for the purpose of rolling and unrolling a curtain or shade, in the manner set forth.

ORE-WASHER—H. Barnard, of Morristown, N. Y.: I claim the series of pans, C C, of sizes graduated as described, attached to the upright shaft, B, which receives a combined rotary, reciprocating and vibratory motion, by which varying degrees of agitation are given to the pans, substantially as and for the purpose described.

[This machine consists of a series of pans, attached one below another, to an upright shaft, which has a rotary, a vibratory, and a longitudinal motion imparted to it by suitable mechanism. The pans gradually increase in size from the top to the bottom of the series, and the substances to be washed being introduced with a stream of water into the top one, the overflow of the water from one pan to another from the top to the bottom of the series, combined with the movements of the pans with the shaft and the action of a series of stationary or movable agitators, effect the washing operation in a very perfect manner.]

GOLD-WASHER—Henry Barnard, of Morristown, N. Y.: I claim the employment of a series of pans, C C, furnished with a series of annular retention rims, k, projecting from their upper side, and arranged one below another, fast on a horizontal revolving and vibrating shaft, and being alternately larger or smaller in size than one another, from the top to the bottom of the series, and alternately inclined inward and outward, or made concave and convex, substantially as and for the purposes set forth.

[This is a modification of the above described machine, to suit the requirements of gold-washing. The pans are all of the same size, and are open in the center, being connected to the central shaft by arms, and between each of these is a deflecting plate, somewhat smaller than the pans, and being inclined in an opposite direction, acts as an auxiliary one. A series of rims or annular projections are placed round both series of pans, and serve to retain the gold, the motions of the machine being the same as above.]

RAILROAD SNOW PLOWS—J. K. Babcock, of Honeoye Falls, N. Y.: I claim forming the body of the plow or device of two boxes, A A, mounted on the truck, B, substantially as shown, so that said boxes may be tilted, for the purpose of readily discharging their contents.

I also claim, in combination with the boxes, A A, the inclined plane, C, mounted on wheel, e, and applied to the truck, D, substantially as and for the purpose specified.

I further claim attaching the doors, b, to the boxes, A A, by means of the rods, d, fitted in the pivoted bearings, j, at one end, and provided with hooks, k, at the opposite ends, whereby the doors are rendered capable of being adjusted either parallel with each other, and forming sides for the boxes, A A, or in oblique positions to form mold-boards or deflectors, for the purposes set forth.

[This invention consists in having two oblong rectangular boxes placed parallel with each other upon a truck, and so mounted that when filled they can be readily tilted, and the snow discharged from them. An inclined plane is mounted on wheels, and connected to the front end of the truck to form a share, and the outer sides of the boxes are provided with doors peculiarly arranged, so that they may, when necessary, be adjusted to form mold-boards or deflectors, and the plow rendered capable of clearing the rails of snow at a greater or less depth.]

HANGERS FOR SHAFTING—William B. Bement, of Philadelphia, Pa.: I do not claim supporting a box or bearing for a shaft upon trunnions cast on the box, nor suspending the same upon the pointed ends of screws.

Nor do I claim the more common arrangement for holding the box, so as to allow an universal motion of the same, by means of the ball and socket.

Nor do I claim adjusting the same vertically by means of a screw and two nuts, the former sliding up and down in a cylindrical tube.

I claim the construction of the single stem, k, carrying the box, C, and so arranging it relatively with, and connecting it to, the hanger or support, by bushing E, that the box and shaft shall have a co-operative self and universal line adjustment with each other, and the shaft have a universal position adjustment, so as to be moved readily to find any and every point or location within the required limits, and be secured therein, and that the line of the shaft may be placed and run above the support or below the hanger, to constitute it a long or short one, and also receive any and every line and self-adjustment positions within a complete horizon or circle, essentially in the manner and for the purposes set forth and described.

MACHINE FOR MAKING CIGARS—Louis Beauche, of Paris, France. Patented in France May 22, 1856: I claim forming the core of cigars, and covering the same with tobacco leaves, so as to acquire a perfect shape by means of the apparatus described, consisting mainly of endless bands made of india rubber, or any other suitable yielding substance, revolving in contrary directions, so as to gather the tobacco for forming the core under required pressure.

I also claim at, or near the ends, of the covering bands, shaping dies, which are so constructed as to allow the leaves to be fed in and between them, to give a perfect form to the conical end of the cigar.

I also claim the arrangement described of knives on each of the frames supporting the band rollers.

I also claim the general arrangement of parts constituting a cigar-making machine, substantially as specified.

POWDER FLASKS—J. H. Breckenridge, of Meriden, Conn.: I claim the combination of a chambered cut-off, constructed and operating substantially as set forth, with a receptacle or flask, and a delivery tube, the whole constituting an apparatus for charging fire-arms.

ROTARY BLAST-PRODUCING CHAIR—L. R. Breisach, of New York City: I do not claim the arrangement of stationary seats with one pair of bellows, with one foot to be worked upon by a kind of pump-handle, in order to produce a current of air.

But I claim the combination of the portable rotary chairs, with double-acting two pairs of side bellows, and the mechanism described, by which, with little muscular exertion, constant currents of air are obtained for cooling the operator.

HARVESTERS—Albert D. Briggs, of Springfield, Mass.: I claim the combination of the intermittingly vibrating gate, H, intermittingly moving apron, E, and adjustable plates, E' E', placed over the apron, E, arranged as shown, so as to operate as and for the purpose set forth.

[The grain, when cut, is by this machine separated, while being discharged, into proper quantities to form sheaves or gavels, and the grain which is cut is kept entirely distinct from that which is being cut.]

MACHINE FOR CUTTING KEY-BOARDS FOR MUSICAL INSTRUMENTS—Derwin E. Butler, of Chesterfield, Ohio: I do not claim to have invented the mode of making uniform and equal or unequal divisions by the intervention of a spacing or "dial plate," with holes or notches corresponding with the required divisions, as gearing is cut, and many similar operations performed through its instrumentality.

But I claim the use of the spacing plate, H, with ranges of holes, h1 h2 h3, and others, if necessary, but one range of which shall conform to, and correspond with, the musical chromatic scale, and the other with the mechanical divisions of the key-board and its frame, in combination with the carriage and platform, the oscillating frame, F, and tool mandrel, C, and the vertical bar, F', (said carriage having a longitudinal and transverse motion,) and the whole operated in the manner and for the purposes as set forth, by the mechanical devices described, or their equivalents.

PROPELLING CANAL BOATS—Herman Camp, of Dunkirk, N. Y.: I do not confine myself to the precise construction, proportions, or arrangement set forth, but include all modifications thereof as shall be best adapted to secure the desired object, by means substantially the same.

First, I claim the arrangement and location of the propelling wheel, D, and its supporting frame, C C, at or near the center of the boat, for the purposes and substantially as set forth.

Second, I claim supporting the engine upon the vertically-moving frame, C C, for the purposes substantially as described.

Third, I claim the combination of the flexible steam pipe, G, with the stationary boiler, H, and the vertically moving engine, E, for the purposes and substantially as set forth.

INDIA RUBBER DOOR MAT—Edwin M. Chaffee, of Providence, R. I.: I do not intend to confine myself to the lozenge cells, as it is obvious that square and some other forms will do as well.

Neither do I intend to confine myself to ribs or ridges intersecting each other, as it is evident that ridges forming various figures will answer much the same purpose, such, for instance, as run circular, parallel, serpentine, zig-zag or angular, or any other raised surface of rubber.

Nor do I confine myself to rubber alone as the only gum, as gutta percha, and other gums, may be substituted for it.

I claim the mat as formed by ridges or grating, together with the cells or spaces, of whatever form, the one to serve as scrapers to clean the foot, and the other to contain the dirt, whether of rubber, gutta percha, or other flexible gums.

METALLIC WINDOW SHUTTERS—John B. Cornell, of New York City: I claim constructing metallic shutters, doors, &c., of double casings of sheet metal, combined with a frame composed of T-shaped metallic bars, substantially as set forth.

TRAP FOR CATCHING RATS AND OTHER ANIMALS—C. D. Fink, of Columbus, Ohio: I claim the pivot catch or trigger, with arms, d, with square and beveled slots or catches, for supporting and disengaging the floor, C, operating as described and for the purpose set forth.

FIRE BOX AND GRATE—J. J. Folts, of Buffalo, N. Y.: I am aware that cylinders with grates attached to their ends, and revolving basket grates, have been used. These I do not claim.

But I claim a revolving or turning fire-box, which is open at its opposite sides or ends, when used in combination with a fixed grate, substantially in the manner described and represented.

SURVEYORS' PROTRACTOR—J. A. Finn, of Simpson co., Ky.: I claim the forming of two concave protractors, and combining them with a convex protractor, square and scale of admeasurement, so as to form one instrument, by which plotting of every description may be done with greater facility and equal is not superior accuracy.

SHINGLE MACHINE—George Craine, of Fairfield, Iowa: I claim first, In combination with the pivoted reciprocating cradle, L, the pawl lever, w, ratchet, v, and its shaft, u, for tilting said cradle alternately from one side to the other to form the butts and points of the shingle, substantially as described.

I also claim, in combination with the reciprocating carriage, the device for giving to it a slow forward motion, and a quick backward motion, viz., the elliptical spur gears, E F, with their shafts, cranks, and connecting rods, as set forth and represented.

I also claim so arranging the two carriages and two saws, as that one shall serve as a check balance or governor to the other, and *vice versa*, by making the sum of the forces of the two saws when sawing to conform to that of one of them when it alone is sawing, the compensation being effected by the comparative length of the kerfs that each or the single saw may be cutting, as set forth.

LIFE-PRESERVING MATTRESS—C. P. Crossman and E. M. Quimby, of Warren, Mass.: We do not claim the employment or use of cork, nor do we claim separately or apart from the whole any of the parts decribed.

But we claim the springs, A, and corks, B, connected by the cords or straps, a c, encompassed by the filling or layers, C, and enclosed by the case or covering, D, provided with pockets, E, and straps, G, the whole forming a new and useful article of manufacture for the purpose specified.

[Springs, such as are ordinarily used by upholsterers, are used in this mattress placed between plates of cork, so that an elastic as well as buoyant mattress is obtained, and having strings at the sides, a number of them might quickly be connected into a raft which would hold a goodly number of persons.]

PUBLIC CLOCK—A. D. Crane, of Boston, Mass.: I claim, first, Winding up and renewing the motive power at regular intervals for keeping the pendulum in motion, so as to supersede the necessity of winding up by hand, and so as to drive the pendulum independently of the other movements of the clock, by the arrangement of devices described or their equivalents.

Second, I claim winding up the cord and weight that drives the pendulum, by means of the drop lever catch or its equivalent, operating by its downward movement upon the hooked arm, and thereby turning the drum upon which the cord is wound, substantially as described.

Third, I claim the arrangement of devices for winding up every hour the cord and weight whereby the hands are kept in motion, in combination with the drop lever catch, whereby the escapements are operated in such a manner as to give an intermittent rotary motion to the wheel for carrying the hands, and prevent its moving more than one tooth at a time.

And in combination with the foregoing, I claim the means employed for carrying the hour hand, the same consisting of the notched or tooth wheel, moving eccentrically and imparting the necessary motion to the wheel, O', as set forth.

ROCKING CHAIRS—Thos. W. Currier, of Lawrence, Mass.: I claim the above described mode of combining rockers, F F, with the chair-stand, A, and the recumbent back, B, viz., by levers, D D, and arms, E E, arranged and connected with the back, B, the arm rests, C C, and the chair-stand, A, and jointed to the rockers, substantially in the manner described, so as to enable a person by laying hold of, and moving the back, either to cause the chair to be supported on its legs or on its rockers, as occasion may require.

FIELD FENCE—John Drown, of Huron, N. Y.: I claim the combination of the wedging clamps and chairs, with the perpendicular tension wires or rods, arranged and operating together, substantially in the manner and for the purpose specified.

HOLDING HORSE REINS—J. A. and F. Dunworth, of Dobbs Ferry, N. Y.: We claim the elastic tubes, C C, or their equivalents, placed within a case, A, attached to the dash-board, the reins being attached to the tubes, and the whole arranged substantially as and for the purpose set forth.

[This rein-holder provides a permanent hold fast for the reins, one that may be connected to the reins, and will not at all interfere with their proper management while the horse or horses are being driven, and at the same time holding the reins the moment they are dropped from the hands of the driver.]

TREE PROTECTORS—Josiah Foster, of Sandwich, Mass.: I do not claim surrounding the trunk of a tree by a trough to contain a liquid, and so that such liquid may present an impediment or barrier to the passage of insects or worms across the trough.

But what I do claim is arranging the trough around the tree, so that there may be a clear space for the passage of insects or worms, between it and the tree and suspending the said trough from the body of the tree by means of an elastic or flexible elastic cover of cloth or other suitable materials, extending around and affixed at its upper edge or part to the trunk of the tree and at it its lower edge to the trough, the whole being substantially in manner, and so as to operate as and for the purpose above specified.

I also claim in connection with a flexible cover applied to the trunk of the tree as described, making the circumventing trough in two or more sections or separate troughs so jointed or applied together at their abutting ends, so as to be capable of being tipped, so as to enable their contents to be discharged in manner as set forth.

METHOD OF SECURING THE PLANE IRON TO ITS STOCK—P. A. Gladwin, of Boston, Mass.: I claim the two plates, D F, constructed as shown, viz., the plate, D, being provided with the foot pieces or projections, f f', and the oval opening, e, and the plate, F, provided with the bit, g, and pivoted to the part, c, of the throat, C, so that the bit may work within the oval opening, e, of plate, D, substantially as and for the purpose set forth.

[This invention consists in a new way of securing the iron in the planer, so that the iron may be readily adjusted in the plane, and at the same time firmly secured therein.]

CUTTERS FOR HARVESTERS—John Gore, of Fredonia, N. Y.: I claim the cutters, H, as constructed with the conical truncated pivot near its end, and oblong aperture near its center for the purpose set forth, in combination with the cutter, E, when secured on bar, A, and fingers, D, by dovetails and set screw, as described, and for the purpose specified.

RAILROAD SNOW PLOWS—H. T. Hartman, of Lexington, Va.: I claim the combination of the inclined clearer, A, with the double inclined bottom of the car in the manner and for the purposes set forth.

WINDOW FRAMES—Sebastian Haas, of Buffalo, N. Y.: I claim the arrangement of the grooves, f f2, g g 2, and h, in the frame, and the operation of the sash, as described.

WATER BACKS FOR RANGES—James Ingram, of New York City: I claim arranging the water back and parts connected with and supporting the same in substantially the manner specified, so as to allow the said water back to be moved away from the fire or be brought in contact with the same without disturbing the pipes and connections, substantially as and for the purposes specified, and in combination with said movable water back, I claim the lever, k, and weight, 9, to move the intervening soap-stone or fire brick, substantially as specified.

REVOLVING HARROWS—W. A. Horrall and R. G. Sirwell, of Grayville, Ill.: We do not claim the employment or use of horizontal toothed wheels, for they have been previously used.

But we claim the employmedt or use of three horizontal rotary toothed wheels, C C E, arranged as shown, viz., the back wheel, E, having a permanent axis, and the two front wheels, C C, being rendered capable of lateral adjnstment, so that the width of the harrow may be increased or diminished as desired, and the space or width of ground included between the outer edges of wheels, C C, perfectly pulverized.

We also claim the elastic bars, D D F, provided with pressure rollers, i i j, and bearing on their respective wheels, C C E', substantially as described and for the purpose set forth.

[Many harrows are simply teeth attached to rotating wheels, to which motion is given by the forward motion of the implement connected with pressure rollers. This invention is an improvement on that class. It consists in the employment of three wheels having teeth and attached to a triangular frame, two of the wheels being made adjustable, so that they may be brought nearer together or further from each other as required, and all the wheels are provided with pressure rollers so arranged as to ensure their rotations with the forward movement of the machine, and at the same time allowing a certain amount of vibratory motion in a vertical direction, so that they may conform to the inequalities of the ground over which they pass. By this arrangement the harrow is rendered extremely simple and efficient, and capable of being adapted to various uses, some of which are usually performed by a cultivator.]

HARPOON AND LANCE—H. W. Harkness, of Bristol, Conn.: I am aware that other devices designed to accomplish similar results have been made.

But I claim the arrangement of the barbed spears, A A, lance, C, rod, D, lever, G, line J, substantially in the manner and for the purpose as described.

TOOLS FOR CLENCHING NAILS—D. J. Hendrickson, of Otego, N. Y.: I claim the construction of the lips or jaws of pliers, as described, for the purpose of clenching the nails with which the shoes are fastened to the feet of horses and cettle, the clenching being done without a hammer or pounding as heretofore, as set forth and described.

BRICK MACHINES—Geo. O. Houck and Henry Gore, of Springfield, Ohio: We claim, first, The boxes or followers, F F, applied to or fitted on the ends, c c, of the frame, E, and connected thereto, substantially as shown for the purpose set forth.

Second, The hinged plates or shelves, e, which receive the molds attached to the frame, A, as shown and used in connection with the stationary frames, M, and sliding frames, H, provided with the wires, g, the whole being arranged to operate as and for the purpose set forth.

Third, The sliding frames, H, provided with the wires, g, or their equivalents, and connected with the springs, t, in connection with the spring catches, I, the above parts being arranged so as to be operated automatically from the reciprocating follower frame, E, substantially as and for the purpose specified.

Fourth, The strips or ledges, h, placed within the box, B, substantially as and for the purpose set forth.

[This invention consists in a novel device connected with the pressing mechanism, whereby this mechanism may be rendered inoperative while the tempering device is in operation. The invention also consists in the peculiar means employed for presenting the molds to the press-boxes, and for cutting off the excess of clay. There is also an improvement in the mud-mill, whereby the bottom of it and the press boxes are relieved to a considerable extent of the pressure of the superincumbent clay, and consequently much friction is avoided.]

REAPING AND MOWING MACHINES—Chas. Howell, of Cleveland, Ohio: I claim the method of connecting the castor truck with the main frame when used in connection with a lever, E, and arm, d, as described, whereby the operator is enabled instantly to raise the cutting apparatus to surmount such obstacles as may suddenly present themselves, and to regulate the hight of the cut, and at the same time allow the machine to accommodate itself to the inequalities of the ground.

CASTOR FOR FURNITURE—Jacob Kinzer, of Pittsburg, Pa.: I claim the improved mode of constructing castors for furniture described, (having the shank and its body cast in one piece, and the roller and its pivot in another,) by making in each arm of the shank a deep recess with a collar above and a wedge-shaped entrance from beneath, for the purpose of receiving the axis or pin of the roller in the manner herein before described. The recess to hold the roller in place when there is no weight upon it, and the collar to serve as a bearing for the journals of the axis to sustain the weight it has to support.

KNITTING MACHINES—Joseph K. and E. E. Kilbourn, of Norfolk Conn.: We claim combining the needles and sinkers with a reciprocating carriage operating substantially as set forth.

We also claim the adjustment of the position of the needles at the time the sinkers are forming the folds of yarn by means of grooves in the nosing whose sides converge, so as to insure the uniform width of the stitches.

We also claim the combination of a reciprocating series of needles with a reciprocating thread guide, operating substantially as set forth, so as to move at times with the needles and to remain stationary at other times when the needles are moving.

We also claim the varying of the width of the fabric, by causing the thread guide to pass down between one pair of needles and to rise between another pair by mechanism operating substantially as set forth, thus producing a selvage edge when widening is effected.

We also claim the combination of under supports operating substantially as set forth, with a reciprocating series of needles, so as to support the needles and effect the closing of their barbs.

We also claim combining with a reciprocating series of needles and sinkers, cam bars, or their equivalents, in such manner as to impart the necessary movements for forming the loops to the several members of the series in succession, substantially as set forth.

We also claim combining a reciprocating series of needles and sinkers, with reciprocating mechanism for taking up the work as it is formed, substantially as set forth.

HARNESS TREES—F. B. Kuehnhold and D. B. Sturges, of Newark, N. J.: We claim the hook, b, in combination with the grooved nut, f, and cross bar, d, to form the concealed joint, in the manner and for the purpose specified.

EXTENSION REACH FOR WAGONS—J. W. Langdon, of Marengo, Ill.: I am aware that reaches have been devised in various ways, so as to be rendered capable of being extended as occasion may require, and I do not broadly claim constructing a reach of two parts so connected as to be extended or shortened.

But I claim the arrangement of the pawl, E, screw, F, pinion, D, and rack, C, as and for the purposes set forth, whereby the reaches may be expanded, contracted and locked at pleasure, and effective assistance given to the team when necessary by the driver.

[This reach is formed of two parts, one being placed over the other, and connected by clasps or guides which keep them together, but allowed to slide longitudinally. To one part a rack is fixed, and a pinion is fitted in the other, the pinion gearing into the rack and provided with a stop or pawl, the whole being arranged so that

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an extension reach is not only obtained, but a device to assist the teams in extricating wagons from sloughs and helping them over obstacles.]

REFRIGERATORS—W. D. Ludlow, of New York City: I claim the provision substantially as described of an hermetically closed or sealed ice reservoir within or in connection with a vessel containing water, or any other matter to be cooled or kept cool.

HINGE—John C. Mason, of New Hartford Center, Conn.: I claim the construction of a loose joint butt hinge, which becomes a tight joint as soon as turned from the position in which it is put together in the manner set forth, or in any other manner substantially the same, whereby I am enabled by putting hinges on each edge of a door to open it right or left, or by reversing the butt to make a solid hinge, as described.

WATER CLOSETS—Francis McGhan, of Washington, D. C.: I claim the chamber, D, behind valve, f, in adjustable communication with the water-head, and having a waste discharge by the operation of the lever tilting the pan, substantially as and for the purpose set forth.

ICE SPUR—Chas. Monin, of Buffalo, N. Y. I claim the curved or bow-shaped metallic plate, D, attached to the heel, B, of the boot or shoe, and constructed and arranged substantially as and for the purpose set forth.

[This is a contrivance which may be attached to the heel of a boot or shoe, and having a serrated edge will prevent the wearer from slipping when walking on ice. When not required it can be turned over the heel, and is no inconvenience, and in summer it can be removed with ease, to be just as easily replaced in the winter again.

HARVESTERS—Frederick Nishwitz, of Brooklyn, N. Y.: I claim the lever, H, attached to the draught-pole, E, and connected by the cord or chain, d, to the front end of the frame, A, in connection with the pawl, lever f, and adjustable stop, k, the whole being arranged to operate as and for the purpose set forth.

[In this harvester the sickle is raised by means of the draught-pole when the machine is "backed," as in turning at the end of the swath, and thus made free from the ground when required. The sickle can also be maintained at a proper hight to cut the grain.]

ATTACHMENT FOR HARVESTERS—J. W. Patterson, of Philadelphia, Pa.: I claim the combination of the elevated or counter platform, B, which receives the grain and from which the rake, d, receives and deposits it, with the rake as arranged, viz., with the wheel, P, on which the outer end of the rake rides, the incline plane or hinge-rail, O, the weight or ball, N, and the chain, C, substantially as set forth and described.

RECEIVING MAGNET—Nathaniel Parks, of Rome, N. Y.: I claim of my improvement in receiving magnets for telegraphs, opening and closing the circuit by means of a vibrating permanent magnet inclosed within one of the helices, together with an electro-magnet, and operated upon by both poles of the electro-magnet in the manner set forth.

CAR WHEELS—S. C. Parrish, of Nashville, Tenn.: I claim a car wheel made substantially shown and described, viz., the hub and rim connected by means of two plates having corresponding radial corrugations, said plates being cast with the hub and rim, and their several corrugations being united together so as to form a series of radial chambers within the wheel, as and for the purposes set forth.

[This improvement consists in connecting the hub and rim by means of two plates having corresponding radial corrugations, all being cast together, so as to form a series of radial chambers in the interior of the wheel, their several corrugations being connected together.]

COTTON PRESSES—H. W. Randle, of Barnsville, Ala.: I claim the revolving box, B. and follower, C, mounted on a carriage as described, in combination with the sliding frame, d, e, e, so constructed as to lock the box, and be withdrawn, substantially as set forth.

FLY TRAP—Thomas M. Scott, of La Grange, Ga.: I claim the arrangement of the recess, C, end A', spaces, e f, chambers, c d, end piece, g, openings, i i', receptacles, D D', box, A, and partition, a, all as described, whereby the catching and retaining capacity of the contrivance is doubled without any augmentation of the driving power, and with little or no increased expense in construction.

[An endless belt is so connected with fly cages, that when a fly descends on the belt, it is drawn into the cage and cannot escape. It is a simple and cheap contrivance for getting rid of our summer pests.]

FURLING THE SAILS OF WIND WHEELS—G. W. Shaw, of Thompson, Conn.: I claim attaching the sails, E, to the frames, B C, substantially as shown, whereby the wind is allowed to pass between the sails and within the wheel, and to act against the sails as it passes out from the wheel.

I further claim attaching the upper ends of the sails, E, to rollers, h, which have cords, i, passing around them at one end, the ends being connected to a plate, F, placed on the shaft, A, and resting upon the spring, G, the above parts being used in connection with the movable frame, C, whereby the area of the sails may be increased or diminished as desired, for the purpose set forth.

[This windmill is formed of vertical sails placed between two horizontal wheels; they are set angularly, so that the wind may enter the wheel between the sails and propel it by reaction, and passes out between them, the wind as it leaves the wheel acting simultaneously upon the greater portion of the sails. There is also an improved reefing arrangement.]

BANK CHECK CANCELER—William M. Simpson, of Newark, N. J.: I claim, first, The application and use of the cancelling knives, a, a, a, in combination with an ordinary press for the purpose of canceling checks and other instruments in writing; substantially as described.

Second, I claim as new and of my own invention the use of the sectors, D, D, D, operating between the knives a, a, a, through the disk, O, by means of the pins, E, E, E, and in contact with the checks below and the projecting edge of the barrel, H, above, substantially in the manner and for the purposes set forth.

Third, I claim the combination together of the disk, O, the sectors, D, D, D, and pins, E, E, E, with the knives, a, a, a, piston, C, and barrel, H, substantially as set forth.

LUBRICATORS—W. R. Stevens, of Alexandria, La.: I claim the arrangement shown and described of the disk, E, and valves, F, when the latter operate, and are rendered adjustable, substantially as and for the purposes set forth.

[This valve has a spindle passing through the oil receptacle, to which are attached two valves and a lever outside, so that when the cup is filled with oil, the lever can be turned so as to open communication between it and the cylindrical receptacle, and at the same time close all connection between the receptacle and the steam-chest; and when the receptacle is full, the reverse operation can be performed. The valves are kept to their seats by means of springs.]

RAILROAD SAFETY SWITCHES—Joseph Wood, of Jersey City, N. J.: I claim the combination of the safety rails, b b', the forked rails, a a' a'' a''', and the guard rails, c c', arranged and operating in the manner and for the purpose described.

MILL BUSHES—George Strause, of Boonsborough, Md.: I claim providing the bush segments with shoulders, d d, arranged substantially as described, whereby all the segments are adjusted by moving either one of them by means of a single set screw.

I also claim beveling the upper end of the segments, in the manner and for the purpose specified.

REPEATING FIRE-ARMS—Charles C. Terrel, of Shullsburgh, Wis.: I do not claim the invention of a double chambered slide, when each chamber is furnished with a solid or permanent breech.

But I claim, first, The employment of a double sliding charge-holder, C, having openings, b b', right through it, in combination with a breech screw, D, arranged opposite the bore of the barrel, so that the said breech screw makes a complete chamber of either opening, b or b', which is in line with the barrel, and at the same time makes a tight joint between the chamber and barrel, while the opening is in condition to receive a cartridge through its rear, from a magazine in the stock of the gun, and easily detached.

Second, In combination with the use of two magazines, arranged as described, I claim combining the double sliding charge-holder, C, and the hammer, with the lever, F, under the stock, by means of the bevel gearing, E' F, and the eccentric pin, d, and wrist pin, w, substantially as described, so that by moving the lever in either direction, the charge-holder has imparted to it the necessary movement to receive a new cartridge from one of the magazines, and present another cartridge in line with the barrel, and the hammer is cocked, thus enabling the gun to be fired twice with one movement of the lever back and forth.

Third, Combining the hammer with the breech screw, so that the cocking and letting off of the former will draw back and drive up the latter, by means of the fork 15, 16, the slide, Q, with its finger, 11, and the spiral groove, 12, in the head of the breech screw, the whole operating substantially as described.

[We have noticed this invention in another portion of this journal.]

PLOWS—Marshall Turley, of Galesburgh, Ill.: I claim first, The combination of the beams, plow shank, lever, and brace or adjusting rod, arranged behind the axle, substantially as set forth.

Second, The combination of the wheel, B, for holding, with the cutter, m, for cutting the stalks, substantially as described.

Third, I claim the combination of the weed-gatherer, n, with the plow or plows, when arranged and operating as set forth.

CHURN—Charles M. Vail, of Susquehanna Depot, Pa.: I claim the use of the graduated levers in connection with the governor, M', the whole constructed as described, and operating on the dasher-staff through the director, Q, keeping it in a vertical position, and avoiding friction, as set forth.

IRONING TABLE—W. Vandenburgh and James Harvey, of New York City: We claim an ironing table composed of a stand of suitable form, having the board hinged or pivoted to it at one end, and a suitable support for the same at the other, with a spring, or its equivalent, applied to raise the board from its support, the whole being combined to operate substantially as described.

[Full particulars of this invention will be found on another page.]

PLOWS—W. W. Van Loan, of Catskill, N. Y.: I am aware that pulverizing blades have been attached to the mold-board of plows, and also placed in rear of cultivators; but neither of these can perform the function of my under cutters, and I lay no claim to such devices.

But I claim the attachment of one or more horizontal cutters to the land-side of the plow, whereby the land is cut horizontally below the surface, so that it may be turned over by the mold-board during the succeeding cut, with greater ease, substantially as set forth.

GRAVIMOTOMETER—J. W. Wetmore, of Erie, Pa.: I claim the new use of magnetic induction to form a gravimotometer, by means of the magnets on the equator of the globe A, so that when A is revolved on the vertical axis it will cause the iron globe, B, to revolve in an orbit about A, and also on its vertical axis.

I also claim the machine described as an improved orrery, because the revolutions correspond in cause and directions with the actual revolutions of the planets, all substantially as set forth.

RAKING ATTACHMENT FOR HARVESTERS—Jacob V. A. and Andrew Wemple, of Chicago, Ill.: We do not claim, broadly, giving the rake the movements specified, when they are effected by two distinct operations, as devices operating in such manner are already patented.

But we claim the peculiarly-formed double crank arm B, connected at opposite extremities with the rake and pitman, and journaled in a swivel box, C, substantially as described, in combination with the double-jointed pitman, G, and the studs, b and c, on the box, C, arranged and operating substantially as described.

DRAWING COTTON, &C.—Cullen Whipple, of Providence, R. I.: I claim the method described of drawing cotton, wool, flax, or other fibrous materials, viz.: by means of a revolving toothed or card-clothed cylinder, A, and a single pair of drawing rollers, B C, which draw the fibers directly from the teeth of said cylinder, A, the surfaces of said rollers, B C, revolving as much faster than the surface of cylinder, A, as is requisite to produce the desired degree of drawing.

[A notice of this will be found on another page.]

REST ATTACHMENT FOR LATHES—Daniel White, Jr., of Lowell, Mass.: I claim the hinged index rest as seen at M, for the purpose of roughing the material to be turned, in connection with its subsequent use as shown at H G and n n, arranged as shown and for the purpose set forth.

CARRIAGE SPRING GUARD—Thomas Winans, of Baltimore, Md.: I claim the combination of the spring with a guard, arranged in relation to the spring, the body, and the bolster or axle of the carriage, substantially as set forth.

HYDRAULIC VALVE—Calvin and George M. Woodward, of New York City: I claim the arrangement and combination as shown and described of the valves, G, caps, H, and bolts, I, the caps serving the extra purpose of bearings for the valves, and the bolts the double purpose of packing the caps and stopping the valves.

[This is described on another page.]

COTTON PRESSES—F. W. Witting, of Yorktown, Tex.: I do not claim, broadly, compressing cotton by giving or subjecting it to both a lateral or vertical pressure, for this has been previously done.

But I claim the peculiar means employed for effecting such purpose, whereby the two movements are produced by one and the same application of power, to wit: having the side, k, connected to the toggles formed of the levers, n o, in which the bars, I G, are attached, the bars, I, being provided with projections, q r, arranged relatively as shown with the follower, E, which is operated by the screw, C, or its equivalent.

[See an engraving and description in another portion of this paper.]

STEAM PRESSURE GAGE—William Burnett, (assignor to Seth Adams,) of Boston, Mass.: I am aware that a flattened elastic curved tube has been used to indicate the amount of pressure applied to its inner surface, by its tendency to straighten out when the pressure is applied. I do not, therefore, claim such an application of a flattened tube.

But I claim the use, in a pressure gage, of a straight flattened tube, in combination with suitable mechanism for communicating the motion of the flattened sides of the tube, caused by pressure applied to its surfaces, to a suitable indicating apparatus.

PLOWS—Elijah H. Bloodworth, of Thomaston, Ga.: I claim the combination of beam, Z, and its handles, O, with the double feet, L L, and braces, C D, the whole being arranged in the manner and for the purpose set forth.

RE-ISSUES.

SEED PLANTERS—George W. Brown, of Galesburgh, Ill. Patented February 2, 1853: I am aware that a rotary coulter has been used in opening a furrow for seed to be dropped into, from a seeding machine, but as the tube is necessarily placed behind such a coulter, the earth will run into and fill up the furrow between the coulter and the tube, before the seed are dropped into it. I do not, therefore, claim any such contrivance.

But I claim a shoe for opening a furrow, which has a convex edge in front, and a seeding tube in its rear end, so that it may cut through any grass, open out a furrow, and hold it open until the seeds are deposited in it, substantially as set forth.

WALKING-STICK GUN—Ira Buckman, Jr., of New York City. Patented August 4, 1856: I do not claim combining a gun and cane together, so that they can be used for either purpose.

But I claim, first, Moving the lock piston, H, backwards, to effect the cocking of the lock, by revolving the section, T, and its attached spiral cam, T', as described.

Second, Cocking the lock (or retaining the lock piston H, in position, when moved backwards to its full extent) by the locking plate, E, dropping into a transverse groove in the top of the piston, as described.

Third, The construction and operation of the trigger, G, as described, which enables the trigger to be closed up against the body of the gun while the lock is cocked.

Fourth, The combination of the locking plate, E, with the trigger, G, as described, by which the strain of the spring of the piston, H, is brought entirely upon the locking plate, leaving the trigger free from strain or pressure, and enabling the trigger to discharge the lock with slight effort.

Fifth, The thimble, V, as described, for the purpose of being moved over the lock catch, E, and trigger, G, to confine and secure them, so that the lock cannot be operated without first moving back the thimble.

Sixth, Extending the body, M, beyond the end of the barrel, N, and constructing it of lighter material than the barrel, as described, for the purpose of making the cane of requisite length, and of guiding and directing the course of the bullet after it is fired from the barrel, without adding materially to the weight of the implement.

DESIGNS.

STOVE PLATES—Edward J. Delany and John Martino, (assignors to Cresson, Stuart, & Peterson,) of Philadelphia, Pa.

HANDLES OF SPOONS, &C.—Henry Hebbard and John Polhamus, of New York City.

TABLES FOR SEWING MACHINES—S. F. Pratt, of Roxbury, Mass.

ADDITIONAL IMPROVEMENTS.

BULLET MOLD—Henry L. DeZeng, of Geneva, N. Y. Patent dated March 31, 1857: I claim, first, The plate, D, with the permanent core, f, in combination with the jaws, A B, and the screw, l, operating in the slot, g, substantially as described.

Second, The blade, E, constructed as described, in combination with the handle, C, and the screws, m p, the whole substantially in the manner and for the purpose specified.

LIFE-PRESERVING BERTHS FOR STEAM AND OTHER VESSELS—Elbridge Foster, of Hartford, Conn. Patent dated September 1, 1857: I claim the addition of the adjustable inflated angular side air chambers to the inflated keel life-preserver berths, in the manner and for the purpose as set forth and described.

Patent Rights and the Lobby at Washington.

We have every reason to believe that the intention of the movements made in the House of Representatives by Messrs. Chaffee and Taylor, for the avowed purpose of amending the patent laws, is really to renew, extend, revive, or enlarge several of the old patents, the proprietors of which have separately failed in obtaining legislation in their behalf during the past four or five years. During that time, applications have been made in behalf of the following named patents:—

Colt's pistol patent, worth			$3,000,000
McCormick's reaping patent, worth			1,500,000
Chaffee's india rubber	"	"	2,000,000
Hayward's sulphuric	"	"	2,500,000
Day's several	"	"	2,000,000
Goodyear's several	"	"	20,000,000
Bruce's type-founding	"	"	500,000
Sickles' cut-off	"	"	1,500,000
All other patents,		"	10,000,000
Total,			$43,000,000.

Many of these patents have long since expired, and the patentees have no shadow of right to ask for their revival, because, after a patent right has lapsed in due course of law, the privilege of the invention belongs to the whole community, without restriction, and any attempt on the part of Congress to enforce such restriction is to legalize an impudent monopoly, without the slightest regard for the public benefit. Several other patentees ask for renewals or extensions of the time for which their rights were granted. They have all had time enough to realize enormous sums, and there is no reason why the petition of any one of them should be granted. Not one of the patents above-named should be renewed, or revived or extended. The proposed laws or amendments are, as we have every reason to believe, introduced for the purpose of facilitating the renewal or extension of those patents. The fact is that the patent laws are good enough as they stand. They worked well for forty years. An attempt similar to those now made in the House, with a small proviso for the benefit of some of the above-named patents, was defeated in the Senate during the session of the last Congress. The present movement is an attempt to cheat the country, and to impose upon Congress, through the tricks of the lobby and the ignorance or roguery of the newspaper correspondents, who humbug the journals with which they are connected, and through them the community at large.—*New York Herald.*

Nitrogen—Its Utility.

Nearly every person is aware that a watch without a regulator would be of very little use; sometimes it would be too fast, and at others too slow, and although it would go, it would not keep time. Those who have seen a steam engine may have noticed a part of it shaped thus, Λ, with two balls twirling round on the end of it—this is the regulator. The power of steam was known long before Watt's great invention, but there was no method of regulating it; for sometimes it would whirl like a mill, and at others it would go as slowly as the pendulum of a large clock. Hence we clearly see the value of a mechanical regulator, and from it we can judge by analogy of the utility of a chemical regulator—such is nitrogen. The ethereal fluid surrounding the earth, which we call air, is the source of a terrific power—oxygen; and were it not for the regulator (nitrogen) that is mixed with it, all the operations of nature which are dependent upon the air would go at a velocity so frightful as to defy description. If a candle were lighted, it would instantly be burned out; if a fire were lighted in a grate, not only the fuel, but the whole iron range, bars, trivet, and all, would be consumed. Life, instead of extending to three-score years and ten, would probably terminate in a week. We can thus perceive how much we are indebted to the Divine controller of the universe, who, in giving the air the power (oxygen) gave with it also its regulator (nitrogen). The air contains four parts of nitrogen to one of oxygen; so that when we breathe, we inspire nitrogen in much greater proportion than we do oxygen; yet, singular enough, this gas, nitrogen, has no direct action upon our lives; it is perfectly inert; and it is this singular quality of nitrogen which renders it so very remarkable. Chemists cannot, by any straightforward process, make it unite with any other substance. It is a perfect "bachelor" or "old maid" among the elements. Nevertheless, it does succumb to some of nature's laws, for when the lightning flashes through the sky, we find nitrogen united with hydrogen. A salt of ammonia is then produced; this, the rain brings to the earth; plants absorb it, and animals eat thereof. Finally, we find nitrogen as one of the constituents of animal tissue. True, however, to its character, nitrogen, the moment it has ceased to be under the influence of the vital principle, endeavors, as it were, to again become free. The most unstable, the most explosive and dangerous compounds, are those containing nitrogen. Chemists produce certain materials, which, by the slightest blow, resolve themselves into gaseous elements. Nitrogen is always one of these; and thus the great regulating valve of the atmosphere once more plays its part.

SEPTIMUS PIESSE.

Drawing Cotton, Etc.

Cullen Whipple, of Providence, R. I., has invented an improved method of drawing cotton, wool, flax, and other fibrous materials, by means of a revolving toothed or card clothed cylinder and a single pair of drawing rollers, which draw the fibers directly from the teeth of the card cylinder; the surfaces of the rollers revolving as much faster than the surface of the cylinder as is requisite to produce the required amount of drawing. This mode of drawing produces a more uniform sliver, especially from stock that is of different length as wool and cotton mixed, than the ordinary mode where four or six rollers are used.

Improved Ironing Table.

W. Vandenburgh and J. Harvey, of New York, have invented and patented an improved ironing table, which is constructed so that it affords great facility for putting the garment to be ironed upon the board and removing it therefrom after it has been ironed; thus expediting the process and preventing the garment being rumpled in its removal, as is often the case on an ordinary table. The claim will be found on another page.

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New Inventions.

Improvements in Fire-Arms.

This is an improvement in breech-loading fire-arms to enable them to be loaded with great facility and despatch from a magazine or magazines in the stock. It also consists in an improved mode of applying feed springs to the followers of gun magazines, whereby the capacity of the magazines is much increased, and also in a means of operating what the inventor terms the double-sliding charge-holder, which in part forms two chambers; and of so cocking the hammer that a very quick repetition of the fire is obtained. There is also a method of drawing back and forcing up a breech screw, which serves the double purpose of a breech, and of making a tight joint between the chamber and the barrel. The lock is also simplified so that the hammer is let off with a very slight pull on the trigger and yet is held very secure until the trigger is pulled. It would require drawings to illustrate the construction and arrangement of the parts. Chas. C. Terrel, of Shullsburgh, Wis., is the inventor, and it was patented this week.

Improved Elastic Railroads

The importance of a firm and durable and at the same time moderately elastic track, having long been appreciated by railroad men, have led to various experiments in the form and material of both the tie and the rail, which has resulted in the decision that the stone tie or sleeper is too rigid; and the T-rail and wooden ties, although an improvement over the former, is too readily thrown out of adjustment, and costs too much for repairs. The engraving illustrates the invention of S. A. Beers, 289 Broadway, New York. It consists in employing a sub-foundation of rubble stone, a block of oak plank, a shoe of cast iron, an arch or foundation rail and ties also of cast-iron, surmounted by a rolled iron coping rail, with an elastic material introduced between the two kinds of rail.

A, Fig. 1 is a hard wood plank, 3 by 12 inches, two feet long, green or kyanized. B is a cast iron shoe, with a small projecting flanch in which the feet of two arches, C, are placed, the arch or foundation rail being about five feet long. D is the comb of the foundation rail, and E, the tie, with a shoulder on the inside and a mortise and wooden key F, on the outside.

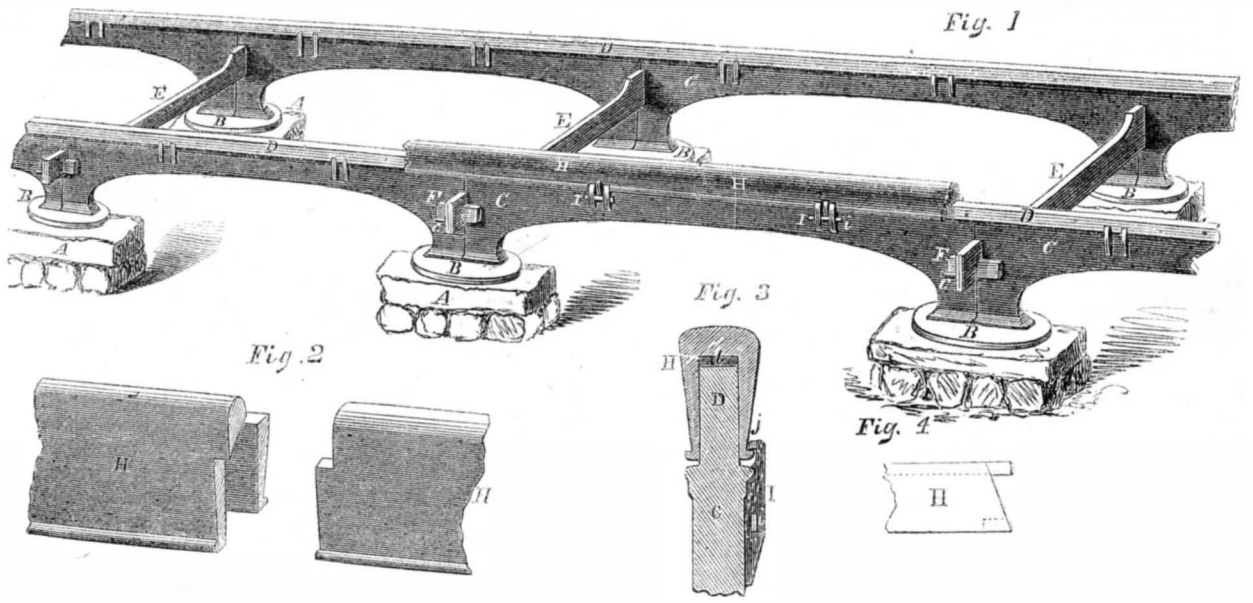
H, Fig. 2 shows the compound, or lock joint, of the coping rail, with an oblique cut across the top surface, and this rail should be three and a half or four times the length of the foundation rail.

Fig. 3. is a transverse view of the comb of the foundation rail, D, and the coping rail, H, although the flanch at the bottom is not to rest on a shoulder of the foundation rail but entirely upon the elastic material on the top of the foundation rail, indicated by *d*; and I, the lugs through which a key wedge is driven binding and drawing the hook, *j*, upon the flanch of the coping rail, while the lug extends above the flanch: the top of the hook is placed on the flanch of H; *d*, may be a strip of india rubber, felt, leather or pine lath, a quarter of an inch thick. Fig. 4 shows the top of the coping rail, H, illustrating the oblique cut across it.

The method of laying the railroad will be by opening ditches two feet below the grade line for each rail, in which separate rubble stone foundations of 1½ feet by 2 feet, and 5¼ feet from center to center, will be laid by placing the stones on end, and driven down with a heavy rammer to an even bearing, and leveled up with cement and small stone to 20 inches below the grade line to receive the oak block on which the cast iron shoe rests at ease. When the superstructure is keyed together, the whole will be filled into the bottom of the coping rail, tamped down and sodded between the rails.

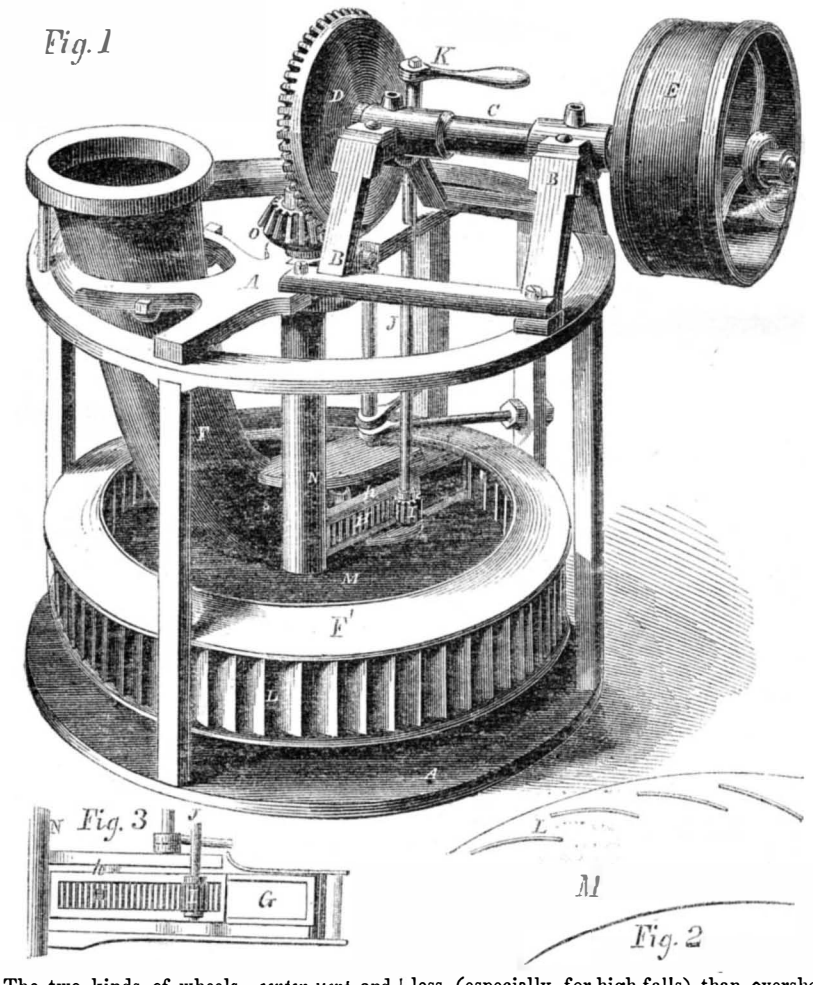
The advantages which the inventor states belong to this improvement are, first, a more perfect track than any plan now in use; no liability to be disturbed by frost or rain; but a small amount of expansion in the coping rail by reason of lying in contact with the foundation rail which is principally embedded and consequently serves as a conductor of caloric, so that a longer rail can be used with closer joints, and by their peculiar form, the end of one rail cannot by any possibility be forced below the other at the joints, the ties being upright in position and below the grade line. The whole surface between and adjoining the rails, may be sodded, preventing any dust from the movement of the cars. The rolling stock, running on a perfect and elastic track, wil last much longer, require less repairs while in use, may be built lighter, and consequently cheaper, with less abrasion to the rail, and requiring much less motive power; and lastly, although the first cost of construction will somewhat exceed that of the railroads now in use, the expense of repairs will be so far diminished as not only to speedily reimburse the construction account, but also to ensure a largely increased dividend upon the total investment.

BEERS' ELASTIC IRON RAILWAY.



Further information may be had by addressing the inventor at Brooklyn N.Y., or by calling at his office, 289 Broadway, this city, where a section of the track may be seen. It was patented on the 27th October, 1857.

DANIEL'S IMPROVED WATER WHEEL.



The two kinds of wheels, *center-vent* and *circumferential vent*, are commonly called "turbines." The water passes through the buckets of the former from the outside to the inside; through the latter from the inside, discharging at the circumference. In this respect they differ entirely from the overshot, breast, and undershot wheels, which have closed buckets, and discharge their water by the same mouths at which it enters. Turbine wheels are now very generally employed in our country and France, and their use is rapidly extending. They are nearly as old as the overshot wheel; but they were seldom used prior to 1830, as until about that period they were held in very low esteem. By various valuable improvements, however, made of late years, they have assumed an important place as prime hydraulic motors, and in many cases have superseded all other kinds. They occupy less space, their first cost is much less, (especially for high falls) than overshot and other wheels, and when properly constructed, they give out as much of the power of the water. For these reasons they are preferred for many situations.

The accompanying engravings represent the turbine wheel of Reuben Daniels, of Woodstock, Vt., to whom was issued a patent for his improvement June 2, 1857.

Fig. 1 is a perspective view of the wheel, with its adjunctive machinery; Fig. 2 is a sectional plan view of the buckets, with the top flanch removed; and Fig. 3 is a vertical section of the mouth of the flume and the gate, for regulating the supply of water to the wheel, and for shutting it off and letting it on.

The common turbine is enclosed in a tight draft box or scroll, filled with the water, which is admitted to all the buckets simultaneously. The wheel here represented has no draft box enclosing it; it is open to the air, and the water is admitted at the center of the flume, F; and instead of operating on the buckets simultaneously, it acts upon them in succession as they rotate. A is the framing of the wheel, M; B are the bearings. The shaft, N, has a bevel gear, O, on its upper end, meshing into another, D, on the shaft of the band pulley, E, which drives the connected machinery. In Fig. 3, G represents the mouth of the water flume, on which there is a horizontal sliding gate, H, having a rack on its back, into which matches the pinion, I, on the foot of the rod or spindle, J. By turning the handle, K, of this rod, the sliding gate, H, is slid back and forth to regulate the size of the mouth or opening, G, to increase or diminish it, according to the quantity of water to be admitted to the buckets, L. The upper flanch, F′, of the wheel projects beyond the lower plate a distance equal to the width of the orifice, through which the water flows to act upon the buckets. By this broad flanch, and the sliding gate, H, the water is so controlled and guided into the wheel that it acts directly upon the buckets until it escapes at the circumference.

Common turbines (both centervent and outer vent) have narrow top flanches, about the same width as the buckets; therefore, by the centrifugal action generated as the wheel rotates, the water tends to rise over the buckets, and is dragged round, thereby causing a considerable resistance, which is sometimes very disproportionate to the quantity of water admitted, thus absorbing much of the power. This evil is designed to be obviated by the arrangements in this wheel. As the center of this wheel is open to the air, and as the centrifugal action causes a partial vacuum to be formed at the center, the air rushing in forms a negative back to the water, and allows it to discharge freely. In enclosed center inlet wheels, the water must be fed in to keep them full, and supply the vacuum; and a center-vent wheel must also have its scroll or flume kept full of water.

For varying quantities of water, which is common to all streams during the different seasons, changeable buckets in wheels have been resorted to for meeting this difficulty, but they are of troublesome and complex construction. This wheel, therefore, will operate according to the quantity of the supply water, be it much or little, and during periods when the quantity of water may be too small to drive the class of wheels referred to.

For more information address Mr. Daniels, as above.

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Scientific American.

NEW YORK, FEBRUARY 27, 1858.

The American Patent System.

It is beyond contradiction, and a point conceded by inventors of all nations, that our system of granting patents is the best that has ever been devised. Under its benign influence the inventive genius of our citizens has been developed to a marvelous extent; and not only our own country but the world has been wonderfully benefited by the resultant discoveries. The electric telegraphs of America are adopted by almost every civilized nation; her reapers cut their waving fields of grain; her fleet-winged clippers carry their goods; her lightning presses print their news; her many-mouthed fire-arms settle their disputes. It may be truly said that the inventions of our citizens constitute one of the prominent national glories of the United States.

Now, all this activity and inventive vigor, which so characterizes our people, has been drawn out and stimulated by the wise system of patent laws which have for so many years been in vogue among us. Every year has seemed to demonstrate, more than before, the practical excellence and value of the existing system. Never was the public more assisted and benefited by inventors, or so well satisfied with the patent laws, as now. Never were inventors so well rewarded for their mental toil as at present. Many of them have risen, within a brief space of time, from a condition of abject poverty to be millionaires, and the wielders of immense pecuniary influences. We look around, with astonishment, upon numbers of individuals who, when we began our humble labors in the SCIENTIFIC AMERICAN, were poor but aspiring inventors. The patent laws have been the means of filling their coffers with wealth, and of making the whole land to ring with applause for their ingenuity. Such fruits are gratifying to every patriot. He feels and knows that each new invention increases the power and augments the prosperity of the country; he is desirous that inventions should multiply, and that inventors should be suitably rewarded.

Notwithstanding the almost universal satisfaction with which the present patent system works—notwithstanding its glorious fruits, both past and present—notwithstanding its generally conceded superiority to any other code in the world, there is still a clique of ignorant, inconsiderate persons who are constantly plotting its injury. They cannot possibly let well enough alone. Of late years, scarcely a single session of Congress has passed without the exhibition of some such misguided attempt. We present the latest example of these miserable efforts in another part of this paper, where we have undertaken the task of its dissection. The paternity of this bill is credited to the Hon. Dr. Chaffee, M.C., of Massachusetts, and the Hon. George Taylor, M.C., of Kings county, N. Y.

Dr. Chaffee was a member of the ever memorable Patent Committee who so valiantly resisted the extension of the Woodworth patent *after* the extension was rendered impossible by the expiration of the grant. While there was a chance for the extension to pass, he was carefully silent. The present bill savors but little, however, of the doctor's cookery. The section in regard to extensions, which has for its object the perpetuation of patents in the hands of rich monopolists, is supposed to have been carved by him, and that is about all.

The Hon. Mr. Taylor is understood to be the head *accoucheur* of the remainder. He calls it his "new" Patent bill; but in reality it presents no novel features; the most noticeable thing about it is the stupidity with which it emasculates the clear and terse language of the present statutes. Well may the Hon. Mr. Taylor boast that, in the manufacture of his bill, he never consulted with any individual at the Patent Office, or with any patent lawyer, or agent, or with any person properly acquainted with the existing laws, their results and operation. He says he expects the opposition of all patent agents, because it would cut down their profits. But in the same breath he tells us that one of the prime objects of his bill is to hedge up the way to patents, and render it difficult for inventors to obtain them. Now this is just what most agents want. The greater the difficulty presented to inventors the more in demand are the services of agents, and the better they thrive; but, in the same ratio, the inventor is "bled." Mr. Taylor's bill would be a godsend to agents and patent lawyers.

Mr. Taylor may be all right at heart in presenting this bill; but he is evidently very ignorant of the subject to which he aspires. We advise him to go home and learn the A, B, C's of patent business before he makes any further experiments. In the words of the *Herald*, "the Patent laws, Mr. Taylor, will do very well as they are. Of all things, don't permit yourself to be made a decoy duck of the lobby."

The idea which prevails in certain quarters that there is some great radical defect in the Patent laws, needing immediate legislation, is an old one, and was long since exploded. Careful examination, comparison and attention to the past and present workings of our laws and those of other countries has abundantly proved that our system, as a whole, is sound and healthy, *and that it is the best ever adopted by any government in the world.*

There are, however, a few minor changes connected with the *administration* of our system that are desirable—such, for example, as the separation of the Patent Office from the Department of the Interior, thus making a new bureau—the increase of the Commissioner's salary—the grant of patents without any distinction as to the nationality of the applicant—the non-return of fees on rejections—compulsory regulations for the attendance of witnesses, &c. These few modifications are about all that is required to render our system so complete as to entirely meet the growing wants of the times.

Lap-Welded Iron Tubes.

This is a comparatively new branch of American iron manufactures, and is at present retained under the control of a very few persons, who endeavor to keep the processes as profoundly secret as possible. The advent of railroads called into existence extensive manufactures of copper and brass tubing for the flues of locomotive boilers. Previous to that era, gun barrels and gas pipes of small caliber had been manufactured of wrought iron, but lap-welded iron tubes, such as are now used, were unknown. Owing to the high price of copper and brass in comparison with iron, many persons in England especially were incited to invent machinery to manufacture unriveted wrought iron tubes of various sizes, to supersede those of the more expensive metals. Their efforts were at last successful, and although copper and brass tubes are still preferred by many, the lap-welded iron tubes are now extensively used for all kinds of multi-tubular boilers and various other purposes.

Lap-welded iron tubes were first introduced into our country, from England, about the year 1845, by Thomas Prosser & Son, of this city, and were manufactured under a European patent previously secured. Soon after this, various attempts were made to make this a branch of our home manufactures, and for this purpose one firm in Philadelphia employed several mechanics who had been engaged in the business in England; but after a considerable expenditure of money, their efforts failed of success, and it was not until 1852 that American lap-welded iron tubes became a "fixed fact." This was accomplished by machinery designed, constructed and operated by Joseph McCully, for the well-known firm of Morris, Tasker & Morris, of Philadelphia. Mr. M. has as yet received but little benefit from his discoveries. By his invention lap-welded tubes are finished in four continuous operations. The sheet of metal for a tube is first drawn through a scarfing machine, which has two cutter heads for matching the edges of the sheet to form the lap, much in the same manner as the stationery cutters for matching boards, only the form of the chisels are different. After the scarfing operation is performed, the sheet or skelp is heated in a reverberatory furnace to prepare it for the bending operation. This is executed by a machine, through which the heated skelp is drawn, and it is upset or bent by dies, and the lap laid ready for welding. It is now heated a second time, in a similar furnace, to the welding heat, after which it is passed over a bill pointed ball placed between rolls fluted in such a manner that, as they roll and press upon the formed tube, they weld the lap without leaving any fin upon it, and at the same time they feed the tube back as fast as it is welded, over a long movable rod or bar attached to the ball on which the tube is squeezed.

After the lap-welding is completed from end to end of the tube, the iron rod is withdrawn and the tube—still hot—is taken out and passed between friction rollers which straighten, smooth and finish it ready for market.

In this manner, by four operations and two heats, American lap-welded iron tubes, are manufactured from sheets or skelps of wrought iron. The machinery employed is simple and well arranged for performing the successive operations, and it is, in many respects different from the machinery and processes employed and practiced in England in the same business.

Hitherto, tubes of this character have only been made from one to eight inches in diameter, but the machinery of Mr. McCully, we understand, is capable of making twelve inch pipes, which, when manufactured, will undoubtedly take the place of riveted flues in long cylindrical boilers, also the riveted pipes employed for the chimneys of some steamers and locomotives. Such flues can be made cheaper than the riveted kind, and they are much stronger and handsomer,

There are only two firms in our country which manufacture lap-welded iron tubes and flues at present, namely, Messrs. Morris, Tasker & Co., of Philadelphia, and Messrs. Seyfert, McManus & Co., of Reading, Pa. The English lap-welded tubing of good quality still meets ours in the market, but the home manufacturing business, we believe, is very profitable and prosperous in the select hands to which it is confined. The price of this kind of tubing varies according to the size. Flues of two inches outside diameter, cost thirty cents per foot of two pounds, or fifteen cents per pound—not half the price of copper tubes of the same weight.

Since 1852, when American lap-welded tubes were first made, the business of manufacturing them has largely extended, and when it is taken into consideration that, in such a steamer as the *Baltic*, there are 5624 two inch lap-welded iron tubes in the four boilers, amounting to 29,526 feet, we can form some idea of the extent to which this business will yet be carried as our steamers increase, and when these tubes will take the place of all others in locomotives.

We can also obtain a more extended idea of the amount of such tubing which will yet be required for such a purpose as artesian wells, when we reflect that very large tracts of California and the Great West—in the Mississippi valley—can only be supplied with water through such agencies. Judging, therefore, from its utilitarian character, the manufacture of American lap-welded iron tubes must ultimately attain to gigantic proportions.

Paine's Wonderful New Discovery.

The Worcester (Mass.) *Spy* describes another of those brilliant inventions with which H. M. Paine is accustomed to dazzle the world, such as eclipsing the sun by his electric "water-gas light," &c. The present new invention is nothing less than *a cold steam engine*—the grandest, undoubtedly, of all his remarkable discoveries. Much was said and written about the "caloric engine," which, although it was to abolish steam with all its attendant dangers, nevertheless required a vast amount of heat to operate it; but now H. M. P. advances and generates steam without a boiler, from water which never boils, in a tank which never gets hot, and which is to take the place of the huge death-dealing steam boiler!

A model of the engine has been exhibited to some admiring friends in Worcester, and the *Spy* states that "the result is incredible (we doubt not) to any but those who actually witnessed it."

The Worcester *Transcript* is also jubilant over the subject, and asserts that "by the application of a common gas burner, a five-horse power engine can be successfully operated."

Mr. Paine having already ascended to the highest round of the *scientific* ladder by his achievements in light, heat and electricity, and finding that none of these moved the world, he has descended to the lowest round, and with *cold steam* will no doubt make a most determined effort to *hoist* the globe—disdaining levers, fulcrum, and all such unnecessary equipments heretofore required by such old fogy philosophers as Gallileo. Wonders never will cease while H. M. P. survives.

The "Leviathan" Afloat.

By the latest news from Europe, we learn that the above vessel was successfully launched on Sunday the 31st ult. The final floating of the great iron ship was accomplished with ease and without accident. The mode of launching was the same from first to last in all the trials, but more powerful and more numerous agencies—hydraulic rams, chains, beams, windlasses and levers—had to be finally employed, than was at first calculated upon. Much has been taught by this affair in regard to moving large masses. It was the first ship launched broadside in England, and the greatest mass of overtowering gravity ever attempted to be slid on ways. She was towed to Deptford where she is to remain until all her engines and internal arrangements are completed. We hope she will be a successful steamer, but this hope is expressed against many doubts, because such a large vessel must be very difficult of management on any element, and because it has been found that the largest steamers, varying from 3000 to 5000 tuns burden do not yield such profitable returns as those varying from 2000 to 2800 tuns.

Forty-three Millions.

By a reference to an extract from a city cotemporary, which will be found printed in another column, it will be seen that the writer sums up the value of the interests in patents for which extensions are solicited by act of Congress, at the enormous sum of $43,000,000. We do not consider it an extravagant estimate. Some of the patents specified in the list are the most valuable privileges in the world—more valuable than any gold mine in California—because they have been worked and their capability fully demonstrated. We have no doubt whatever that an extension of the Colt & Goodyear patents for seven years longer would yield a net revenue of twenty-five millions of dollars—a tax which would be wrung out of the people's pocket by special legislation.

Salt for Plum Trees.

The *New England Farmer* states that it is impossible to cultivate any kind of plums with success in our climate, unless salt enter liberally as an ingredient of the compost for fertilizing the trees. When salt is applied mixed with house ashes, there appears to be no difficulty in producing healthy plum trees. Plum trees should be washed once or twice every year with salt brine, and the ground around the roots should be kept clean and free from grass and weeds.

We shall continue the subject of gas-lighting next week, being obliged to postpone the second article for want of space.

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Abstract of the New Patent Bill.

We have received and now present to our readers an abstract of the Patent bill proposed by Messrs. Taylor and Chaffee. Want of space prevents us from publishing the entire bill, which is of great length, but we will endeavor to give the *pith* of all the most important changes desired to be effected by it.

SECTION I prescribes the duties of the Commissioner of Patents, and gives him entire control of the granting and issuing of patents and also the custody of all the books, records, papers, models, machines, and all other things belonging to the Patent Office, independent of all interference or control from any other department, and fixes his salary at $4,500 a year.

By this arrangement the Secretary of the Interior will no longer control the action of the Commissioner of Patents, who will be responsible only to the President. This is a very desirable change, and one that we have long advocated.

SECTION II gives to the President of the United States power to appoint a Board of three Examiners-in-Chief composed of persons of competent legal and scientific knowledge and ability, whose terms of office shall be during good behavior. The duty of this Board is to determine on the appropriateness of the references made by other Examiners, in all cases of application for patents, extensions, or interferences, and to perform such other duties as may be assigned to them by the Commissioner. Appeals from the decisions of this Board may be taken up to the Commissioner in person, whose action shall be final in all cases.

We believe it was the original intention of one of the authors of this bill to compel the President to constitute this Board of the three of the oldest Examiners in the Patent Office, whose fingers may have been in the framing of this bill; but in consequence of the recent removal of some of these old Examiners, it no longer suits the purposes of these great patent law reformers to advocate that mode of selection. This whole scheme is designed to cripple the power of the Commissioner, by preventing him from selecting such men as, in his judgment, are best qualified to carry out any system calculated to promote the best interests of the Office, and all those who have business with it. No matter how incompetent this Board might prove to be, no matter how obstinate in refusing to grant the claims of inventors upon a mere *show* of justice, no matter how much it might do in an underhanded way to embarrass the action of the Commissioner, the members are made secure in the enjoyment of their office and its emoluments in spite of the Commissioner, and even of the President himself, who seems to have no power in the bill to remove them. Only let them maintain a good external behavior, there they live and there they die.

We do not believe that Congress will lend its sanction to any such monstrous scheme as the above. Let the Commissioner himself have the power to say who shall constitute this Board of Examiners-in-Chief. He is entitled to this privilege, and there is no reason why he should not have it.

SECTION III provides that the salary of each of the Chief-Examiners shall be $3,000 per annum, and gives the President power to designate one member of the aforesaid Board to act as Commissioner of Patents during the absence of the latter, and to perform all and every duty assigned to the Commissioner during such vacancy.

Here is another attempt to throttle the independent action of the Commissioner. It seems as if these patent nurses are determined to hedge about the Commissioner in such a manner as to counteract, if need be, all his previous policy whenever sickness or the necessity of recreation rendered his temporary absence necessary, and schemes might be put through totally at variance with his views, yet for which he would have no remedy. Patents might be legally extended, on a system of favoritism, which the Commissioner himself would think proper to refuse. In the first place, the President does not desire to exercise such an authority, for he has cares enough already; and, in the next place, we maintain that it should be vested only in the Commissioner, as he is the most proper person to exercise it, and he should be kept responsible for the actions of the entire Office as at present.

SECTION IV authorizes the President to appoint twenty-four Examiners at an annual salary of $2,500 each. It also provides for a Head Clerk at $2,000; a Disbursing Clerk at $1,800; a Draughtsman, Machinist, and Librarian at $1,600 each; a clerk to frank letters, documents, and "other matter," at $1,000, &c. All of the above clerks are to be appointed by the Commissioner.

This is a very pretty scheme indeed, and if carried out to its full extent, it would make the Patent Office a gigantic hospital for the support and nourishment of sick politicians. We contend that the Patent Office should be entirely above and kept free from political party influence; it is an institution designed for an entirely different purpose, and the sole test to be applied in the selection of each Examiner should be the doctrine set down by Jefferson—"Is he honest? Is he capable to discharge the duties laid upon him?" The political design of this scheme is apparent from the fact that it provides for the appointment of a clerk to frank "letters, documents, and other matter," without specifying what this "other matter" shall be. We hope no such system will be sanctioned by Congress; for it would debase the Patent Office from its original purpose, and render it subservient to political party designs.

SECTION VI provides that any person making application can obtain certified copies of the records, drawings, and other papers deposited in the Patent Office, on payment for them.

Under the present law, caveats and pending applications for patents are considered confidential communications, and therefore copies cannot be obtained. But under the proposed bill, no exceptions of this kind are provided for. Really, these are beautiful *reforms!*

SECTION VII authorizes the Commissioner to restore to applicants, or, when not removed by them, otherwise dispose of, all models of rejected applications and also models accompanying applications for designs.

Under a strict construction of this section, without specifying rejected and *withdrawn* applications, the Commissioner, should he see fit to do so, could make a bonfire of many ingenious models before the applicant could have time to make an appeal after his case was rejected. Yet we approve of the object contemplated in this section, viz., the disposal of models of finally rejected and withdrawn applications; and as to models of designs, none should be required.

SECTION IX contains a clause that provides that, if the specification or drawings of any patent has been on file at the Patent Office for more than two years previous to the date of the proposed issuing of a patent, it shall not be granted.

This is a very singular proviso indeed, and if an inventor should be so unfortunate as to have his papers misplaced—thrown into a wrong "pigeon hole" at the Patent Office—which is sometimes the case, he must suffer the consequences, and thereby lose his right to receive a patent, if by such misplacement a period longer than the specified time should elapse before the discovery of the error, and thus the unfortunate applicant is made the victim of official carelessness. Such cases are quite liable to occur, yet no remedy is provided to meet them.

Again, the business of the Office is sometimes so great that applications cannot be examined and decided as fast as they come in. Under such circumstances, delay necessarily ensues. Formerly it was quite common for applicants to be kept waiting for a year and a half before the Office could take up their cases, and sometimes more than two years elapsed before a decision was reached.

SECTION X provides that the Commissioner shall cause to be made "a fair, sound and discriminating examination of all applications, so that the inventor shall have a good title to his property in the invention, and that the community shall not part with that which clearly belongs to it." Examiners are to search for such references as bear upon the claim, and place the same before the Board of Examiners-in-Chief, who will grant the patent, if, on examination, it shall appear to be new in this country, or has not been patented or described in any printed publication in this or any foreign country, or has not been in public use or on sale, with the applicant's consent, prior to the application for a patent. If the Board deny the grant of a patent, such denial shall be final, unless the Commissioner shall reverse the decision and grant a patent "which shall be final."

"Really," say we, in the language of Jack Bunsby "here *is* wisdom!" If the Commissioner grants the patent, "it is final," or, in other words, if he issues a patent to an inventor, the latter need have no further apprehension that his application will be rejected.

"The King of France, with twice ten thousand men,
Marched up the hill, and then—marched down again."

But what becomes of our present dignified Board of Examiners? They are to be transformed into a company of sappers and miners to lay open the trenches of dusty records, and carry the result of their researches, like so many pack mules, before the most august Board in the "Star Chamber." And the learned Mr. Taylor says that all this is to oppose "the indiscriminate granting of patents!" The discovery of the existence of such a system is original to the member from Kings county (N. Y.); and we advise him to secure a patent for his wonderful discovery, immediately after his proposed bill becomes a law. Commissioner Holt, in his Annual Report, informs us that 1,861 cases were rejected last year, and we have been told similar stories by previous Commissioners; but it now turns out, under the astute optics of these new legislative lights, that the system of issue is indiscriminate! If it be really so, it is high time that the Patent Office should be afflicted by just such a bill as is here proposed. We are also told in this section that the applicant must not allow his invention to be sold or put into public use before he makes his application; but in another clause of the bill, (see Section 26,) his rights shall not be prejudiced unless the sale or prior use has been for more than two years prior to such application. Now, put this and that together, and we have another proof of the wisdom of "the bill as proposed by Dr. Chaffee and myself," to use the language of Mr. Taylor.

If an inventor wishes to publish his invention, for the purpose of enlisting capitalists to aid him in bringing it forward, it is the purpose of the proposed bill to deprive him of the right to take a patent for it afterward. Inventors! are you prepared to have your rights *fostered* and *protected* in this manner?

SECTION XI relates to the question of priority of invention in interfering cases, and gives the Commissioner power to decide in relation thereto. But nothing in the act shall be construed so as to deprive the original inventor of his right to Letters Patent, by reason of his having taken Letters Patent in a foreign country, and the same having been published at any time within six months preceding the filing of his application.

Here's wisdom too! It now seems that, if the invention has been published at any time within *six months* previous to his application, the law shall not be construed to prevent the inventor from securing a patent. Gentlemen, what do you mean by these twists and turns in regard to the publication and use of inventions? Do you mean to say that an invention must not be published nor used before an application is made for a patent? That it *may* be published at any time within six months preceding the application? And that the sale and use must not be for more than two years prior to such application? We are in a fog on this subject, and move the appointment of a committee of investigation.

SECTION XII raises the fee on applying for a patent to $50, no part of which is returned if the application is rejected. Fees to foreigners are reduced to $50, also the same as to our citizens.

It is highly desirable that the fees charged should be the same to all applicants, irrespective of their birthplace. But to raise the fee to our citizens to $50 is more than equivalent to doubling the present rates. Such policy is suicidal. Hundreds of poor inventors would be debarred from taking out patents. The only necessity for raising the fees appears to be to support the fresh host of lazy officials which the bill creates. It is, no doubt, advisable to do away with the trouble of returning any of the fees. This can be easily done, and would increase the revenue of the Office as much as the present system requires. The cheaper we can afford to issue patents the better. The true policy is to invite and encourage genius; not paralyze it by heaping up the expenses. We believe that the fee for applying for a patent should be fixed at $20, with no return if rejected. If a patent is allowed, then $10 additional should be paid.

SECTION XVII is a long-winded, senseless mess of stuff in regard to proceedings in actions for damages in cases of infringement. It hints at justification to those who infringe patents; indicates a reason why a patent should not be void on account of a previous invention, if such invention be unknown to the patentee; and says that a patent shall be deemed good and valid for such of the inventor's discovery as shall be really and truly his own, provided it shall be a material and substantial part of the thing patented, and be definitely distinguished from the other part so claimed.—A very nice point upon which some of our astute patent attornies would bother our courts and juries most wofully!

SECTION XVIII gives the Commissioner full power to extend patents, as he has heretofore enjoyed, and requires a fee of $100 on each such application for extension; and if it shall appear to the full and entire satisfaction of the Commissioner that it is just and proper that the patent should be extended by reason of those who are now, and those who have been, interested therein, without neglect or fault on their part, having failed to obtain reasonable remuneration, the Commissioner will make a certificate of extension for a term of seven years.

Here is the snake in the grass. Instead of the inventor obtaining the extension of his invention for the benefit of himself, those who have been interested therein can come forward and figure the extension through for their own advantage, leaving the original inventor entirely on a lee shore. This is "protecting the inventor" with a vengeance. By a system of sharp practice under this clause of the law, many an honest inventor will be robbed of a right which common humanity, to say nothing of justice, would demand in his behalf.

SECTION XXI is a provision in relation to conflicting patents. It is a mud hole, and we prefer not to dabble in it.

In subsequent sections the usual provisions are made to restrain alleged violations of patents by injunction; penalties are imposed for counterfeiting the name or patented articles of a patentee; and patentees are required to stamp or engrave on each article vended or offered for sale, the word "patented," under a penalty of $100 for every omission; but the date of the patent is *not* required to be engraved thereon, which is an essential and very important feature, and exists under the present law. Provisions are also made for foreign inventors to introduce and patent their inventions here on the same terms specified in the law now in force, with the exception of the reduction of fees to the standard of citizens.

SECTION XXVI protects persons or corporations who shall have purchased any new invention and the right to use and vend to others to use the specific thing so made or purchased, without liability to any other person; and no patent shall be held to be invalid by reason of such purchase, sale, or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale or prior use has been for more than two years prior to such application for a patent.

See our remarks under Section XI.

SECTIONS XXVII, XXVIII, and XXIX provide for the refunding of any money paid into the Patent Office by mistake, give the Commissioner power to make all such rules and regulations in respect to the taking of evidence to be used in contested cases before him as may be just and reasonable; and authorize him to employ, from time to time, as many temporary clerks as may be necessary to execute the copying and draughting required by this act.

We have now gone over the entire bill, and, with the exception of the celebrated "patent rat-trap" bill invented by Senator James, some years ago, we have never met with any attempt at patent legislation so stupidly senseless. With few exceptions it is a mass of wind and verbiage; and but for a sense of our responsibility as journalists and to that large class of our fellow-citizens whose interests are so deeply concerned in this matter, and whose rights we esteem it a privilege to defend, we should not encumber our columns with it.

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Correspondents

C. G. of Ky.—The manufacturers and venders of sewing machines are now so numerous that it is difficult to answer your question. Wheeler & Wilson, Grover & Baker, Abraham Bartholf, and numerous others make and sell good machines, but they are somewhat expensive. Watson & Wooster make a cheap and simple machine which might answer your purpose.

Waterhouse & Bowes, of Charlotte, N. C., builders of gas works, wish to correspond with makers of the best gas stoves for warming chambers and sleeping rooms.

W. C. C. of Ky,—The works of Prof. Gillespie on surveying and road-making are the best known to us. You can procure them of D. Appleton & Co.

S. Z. H. of Texas—We cannot give the information you want respecting the machine mentioned in your letter.

H. E. of Maine—Your patent will issue soon we expect. The delay has been unavoidable, in consequence of the voluminous details which have gathered about this case, during its progress. You would have made a mistake had you taken the case from our hands and transferred it to the party named. Depend upon it, if we cannot get the patent, the case is hopeless.

W. & B. T. of Mass.—You had better make out a drawing and description of your invention, and after reading it over to some friend, have him sign it, adding the date, and return it to you. By having such evidence you will be just as well off as if you had filed a caveat in the Patent Office.

M. & R. of Ill.—Your boiler-alarm is almost precisely like one patented by Thomas Ewbank, twenty-five or thirty years ago.

A. H, of Penn.—The only instrument which can be employed for discovering magnetic iron ore is a simple magnetic compass. Magnetic iron ore will adhere to a a magnet; this is the test of its magnetic quality.

S. S. T. of R. I.—The Patent Office returns no money which has been paid in on filing a caveat.

I. F. W. of Vt.—There has not yet been a machine patented that will mow as well over rough ground as over an even surface; and we think it will probably be some time before snch a machine will be invented. We have no complete sets of the "Scientific American" for 1856 to send you.

D. L. of N. J.—The attaching of a subsoil plow to the beam of a common plow, so as to have the subsoil plow run in the previous furrow of the common plow, would not form a patentable combination.

S. B. J. of N. Y.—We will not answer letters written in pencil, and without a proper signature. Do you understand us?

P. Van S. of Texas—Our opinions regarding mechanics differ very widely from yours. You state that a machine has been made which gives out more power than that which impels it. This is opposed to the well-known laws of mechanics, and you will come to this same conclusion by further experiments.

O. S. of N. Y.—The placing of hooks on a cylinder to be used as a potato digger would not be patentable There is no patent on it, and there is not novelty sufficient in the idea to make it a patentable subject.

N. A. P., of Tenn.—The subject of selling patents is one on which we cannot well advise, having had no experience in that line. You state that since we published your engraving, you have had applications for the purchase of rights, but you do not know whether to sell territory or manufacture machines. We would sell just in the manner people might wish to purchase, whether the entire right was wanted, or a State right, or even a single right to manufacture. Sell any way and every way that you can.

A. W. M. of Eaton—A good varnish for door knobs, butts, and hinges is made of common copal varnish, colored with good lampblack; dry your butts, &c., in a hot room afterwards.

W. R. P. of Ohio—The most comprehensive production on numbers is the article on the subject in the "Encyclopedia Brittanica," which is sold separate. It is published in London. Davidson's work on mathematics is published in Edinburgh. C. E. Balliere, 290 Broadway, this city, if addressed, will no doubt import them for you. We are not acquainted with Bendy's portable ink, "requiring no pen."

C. F. W. of Tenn.—A good shampooing fluid is made by adding one pint of castor oil to five of strong alcohol, and an ounce of the tincture of cantharides. The addition of half an ounce of sulphuric ether renders it excellent for nervous headache.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, February 20, 1858:—

R. W., of Conn., $50; O. L. R., of N. H., $55; E. B., Jr., of N. Y., $55; J. J., of N. J., $30; D. & M., of Ill., $35; W. J. S., of N. Y., $50; T. S. R., of Ga., $30; I. B. J., of Cal., $20; I. P. W. D., of Ind., $25; J. & L. F., of Texas, $25; H. W. W., of Cal., $25; R. B., o Ohio, $55; W. R. L., of Conn., $10; I. F. E., of Conn. $30; J. W., of Conn., $25; A. A., of L. I., $25; F. N., of L. I., $25; I. R., of L. I., $25; P. S., of Va., $30; R. B., of N. Y., $55; O. S., of N. Y., $30; W. W. H., of Ohio, $20; T. H., of L. I., $30; J. S. D'O., of N. Y., $30; W. Z., of Pa., $30; H. S. V., of N. Y., $10; L. & D., of Wis., $30; G. W. H., of Conn., $32; G. S., of Ga., $5; W. A. S., of Mass., $25; J. D. B., of N. Y., $28.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, February 20, 1858:—

J. J. L. F., of Texas; S. G., of Mich.; O. L. R., of N. H.; E. B., Jr., of N. Y.; W. H. D., of Cal.; I. P. W. D., of Ind.; T. A. DeL., of N. Y.; D. & M., of Ill.; G. I. M., of Conn.; C. D., of Pa.; G. W. H., of Conn. E. B. W., of N. H.; I. R., of L. I.; J. S., of Ga.; W A. S. of Mass.; J. W., of Conn.; W. J. S., of N. Y.; J. J., of N. J.

Literary Notices.

THE CHEMISTRY AND METALLURGY OF COPPER—By A. Snowden Piggott, M. D. Lindsay & Blakiston, Philadelphia. This book is intended to be a sort of handbook of copper for the miner or smelter, and as such we can recommend it, as it contains the pith of much which has been written by others on the subject. The author is evidently largely indebted to "Phillip's Metallurgy" for much of his information, and we do not think the book would have been injured had credit been given.

PRACTICAL MINERALOGY, ASSAYING AND MINING—By F. Overman, Lindsay & Blakiston, Philadelphia. Mr. Overman has produced a work that has been long wanted, that is, a collection of those facts which are of use to practical men, and so arranged that they easily obtain the knowledge they require, without having to first wade through a whole volume of (to them) uninteresting technological phrases and classificatons. We have no doubt that all who are engaged in mining will find it a most useful adjunct to their libraries.

WESTMINSTER REVIEW—The number for this quarter of the above Review, published by Leonard Scott & Co., Gold street, this City, contains a splendid article on "African Life," being a review of Dr. Livingston's travels. It also contains seven other essays, besides reviews of cotemporaneous literature, which form a peculiar and attractive feature of the Review. One of the articles on the "Religious Weaknesses of Protestantism," is presumptuous and shallow on the subject.

THE CALIFORNIA FARMER is a weekly paper published in San Francisco, and contains agricultural matter of the greatest interest to all who reside in that portion of our country.

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RECEIPTS—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona fide* acknowledgment of the receipt of their funds. The Post Office law does not allow publishers to enclose receipts in the paper.

BACK NUMBERS.—After the 1st of January, we shall commence sending the SCIENTIFIC AMERICAN to new subscribers from the time their names are received, unless the person ordering expresses a desire to receive the back numbers, in which case complete sets will be furnished from the commencement of the volume.

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Twenty-five cents per line each insertion. We repectfully request that our patrons will make their advertisements as short as possible. Engravings cannot be admitted into the advertising columns.

*** All advertisements must be paid for before inserting.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of twelve years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 128 Fulton street, New York. We have lately established a Branch Agency on the corner of F. and Seventh streets, Washington (opposite the United States Patent Office). This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard Saint Martin, Paris; and 3 Rue Therrsienne, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

Communications and remittances should be addressed to MUNN & COMPANY,
No. 128 Fulton street, New York.

The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents:—

MESSRS. MUNN & CO.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

HEICH'S CELEBRATED EGG BEATER, just patented, mixes Eggs, Cream, &c., with essences, spices, &c., in a beautiful manner in ten to fifteen seconds. The greatest desideratim ever invented in cookery.—Rights for Sale—a splendid chance for investment. HEICH & BROTHER,
Cincinnati, Ohio.

WATER WHEELS, WATER WHEELS! Bladensburgh, Prince Georges Co., Md., Feb. 2nd, 1858. This is to certify that Messrs. Heath, Stevenson & Burnham, of Laurel Factory, Md., have put up for me one of H. Vandewater's Improved Jonval Turbine water wheels, 3 feet 8 inches in diameter, that vents 220 inches of water under a head and fall of 5 feet, that will grind 10 bushels of fine corn meal. or chop 15 bushels of rye and corn per hour. It is proper to state that the above Turbine wheel displaced a 13 foot 4 inch in diameter and 6 foot wide undershot water wheel, (which was attached to the same pair of mill stones) and the best I could do with the undershot was to grind 2½ bushels per hour, using more water than the Turbine does. I likewise would say that the work done by the above gentleman cannot be surpassed either in workmanship or durability. HENRY WALKER.

I fully concur with the above statement of the Rev H. Walker, and being a practical millwright, say. I consider the above Turbine water wheel one of the best improvements before the public.
CALEB MARRIOTT.

N. F. Burnham is our authorized agent for the sale of wheels and State ights in all Southern States. All letters addressed to him at Laurel Factory, Md., will meet with prompt attention.
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$3,000 WILL BUY ONE-HALF OF THE patent right of my Whiffletree—patented July 7, 1857,—including New Hampshire, Vermont, New York, Pennsylvania, and twelve other States. Address D. A. SMITH, No. 50, 4½-street, Washington, D. C.

STEAM WHISTLES—IMPROVED PATterns manufactured by HAYDEN, SANDERS & CO., 306 Pearl street, New York.

GOLD PENS REPOINTED EQUAL TO NEW—Price 25 cents by mail, with returnpostage. Address L. H. MARTIN, 253 West 25th st., New York.

NOTICE IS HEBEBY GIVEN THAT THE copartnership between B. Moore and W. S. Clark, has been dissolved, and by arrangements made, all debts and amounts due to, and payable by, the late firm of Moore & Clark, are to be received and paid by Mr. B. Moore.

The business will be conducted, as heretofore, under the firm of B. MOORE & CO., 133 High Holborn, London, Merchants and Manufacturers of British and American machines, and negotiators for the sale of patents and patent rights.

MACHINERY FOR SALE.—TWO of WOODWORTH'S PLANERS. Plane 24 inches wide, ¼ to 4 inches thick, weight 1800 lbs., price, $180 (iron frames). Planers that plane from 12 to 24 inches wide, price from $50 to $450, all iron frames; and new machines, warranted perfect. Two of Daniel's Planers, second-hand, plane 40 feet long, 24 wide—one plane 16 feet long, 24 wide, with two extra arms, &c.; these machines are nearly new, price for 40 feet plane, $250, the 16 feet plane, $200r One Steam Engine, 7 horse power, with Montgomery's Patent Cut-off attached, cost $500, price $300, only been used one year. One Tubular Boiler, 12 horse power, cost $625, price $325; in good order, and been but little used. All the above machinery delivered in New York free of charge to the purchasers. For particulars, address HARRISON FLINT, Danbury, Connecticut.

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SOD CORN PLANTERS—PERSONS WISHing to purchase territory or an interest in my Sod Corn Planter, (which was patented January 26, 1858,) can address me at Homer, Champaign county, Ill.
P. C. MOSIER.

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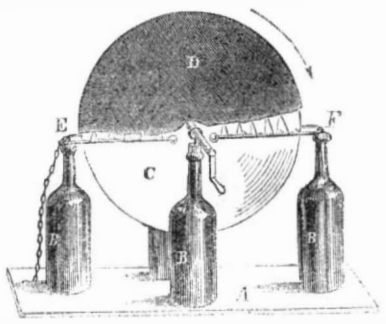
The frost still continuing, we give an illustration of a simple little electrical machine that can be made by any of our young readers, and which will operate well this cold weather. Take a board, A, and fasten to it four bottles of equal size, B, in the position shown. Into the corks of two of them place a wire ring so as to form a journal for a shaft on which is mounted a circle of gutta percha, C, which may be covered with lac varnish or not; to another of the bottles (an end one) attach a bent wire, E, and connect this to the ground or table by a chain. To this bent wire tie a silk cover, D, made of nearly two semicircles of silk sewn together, and also tie the other side to another bent wire, F, from which also some little spikes must project. If, all these things being prepared, the handle is turned so as to rotate the disk in the direction of the arrow and the knuckle be held about an inch or less from F, a series of blue sparks will pass from F to your knuckle, each accompanied by a sharp cracking noise. What is this spark? and from whence does it come? are questions often asked and just as often left unsolved, for to tell the truth, much as we have applied electricity to the uses of the arts, and well as we understand its laws, yet the fact is



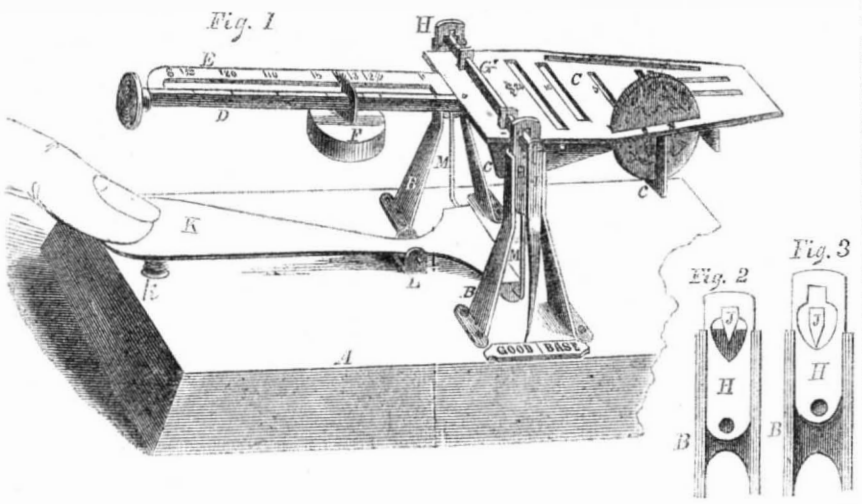
we know nothing of the thing itself, beyond that it is a *force* and can be made manifest by friction and other means. The little machine we have described is a frictional machine, about the operation of which we know just this: that the friction generated between the disk and the silk causes the electricity which was *passive* to become *active*, and it is attracted by the prime conductor, F, from which it flies to the nearest conductor, our finger, at the same moment more passive electricity passes from the earth through the chain, (although were there no chain, it would be attracted from the atmosphere,) and becomes by friction converted into active, and so the process is continuous, and the marvel is that this active and passive electricity are exactly the same. A pair of woolen rubbers, one on each side, may be substituted for the wires, E, which will improve the action of machine. All that is known concerning the nature of this *force* will be found in an article on page 29th of the present volume of the Scientific American.

Improved Coin Balance.

Although we have many coin weighers that will tell us if the coin be the proper weight or not, these do not save the public from much fraud, as a counterfeit coin is often the correct weight but not the exact size, so that we require a measurer as well as weigher. Our illustration shows a balance for this purpose, the invention of F.J. Herpers, 432 Washington street, Newark, N. J., which consists in a balance, suspended from an axis and having a broad expansion on one side and a scale and weight on the other; the coin is placed in its appropriate slit in the broad end, and if it exactly fits, then its size is correct, and the weight, F, being adjusted to the coin by the graduated scale, E, the indicator, I, will show whether it is good or base. The construction of the little apparatus is simple. A is the stand, B are two supports, their edges turned inwards, as seen at Figs. 2 and 3, to form a frame wherein the two supports, H, can slide; in each of these slides is a heart shaped groove in which the knife-edge of the beam, J, rests. When not required to be poised so as to weigh, the beam is in the position shown in Fig. 2, resting on B, but when it is wanted, the thumb is pressed on the lever, K, which moves on an axis, L, and lifting up the wires, M, raises H to the position shown in Fig. 3 The small spring, *k*, tends to keep the lever up when not in use, as it also allows J to rest on B. The balance, C, is supported from the beam, J, by the connections, G′, and underneath, C, there is a rack, *c*, which is to support the coin in the measuring slit. It is applicable to all kinds of currency and can be graduated to suit any standard. The bearings of the knife edges may be applied to all kinds of balances for weighing diamonds or analytical purposes, and it is a cheap and useful little addition to every counting-house.

It was patented Dec. 29, 1857, by the inventor, who will give any further information on being addressed as above.

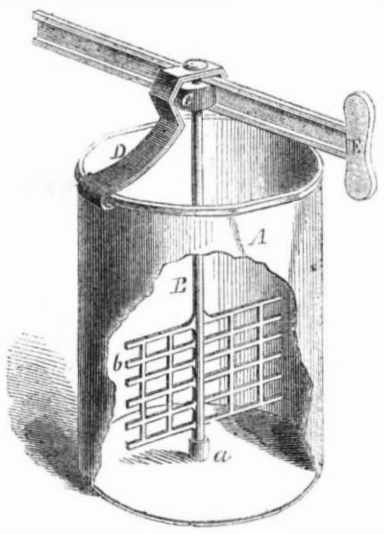
HERPER'S COIN BALANCE.



Heich's Egg-Beater.

This small and simple piece of apparatus, designed to aid the housewife and pastry-cook, can be made of any material or shape, and is always ready to do its work quickly and well.

In our illustration, A is an ordinary tin, Britannia metal, silver, glass or china vessel, having a small socket, *a*, soldered in the center of its base; in this rests the spindle, B, of any unoxydizable metal, having cast on its lower part the grating, *b*. This spindle is square at the top, and a thick india-rubber band, C, passes round it. D is a metallic brace, the hooks at the extremities of which pass around the rim of the vessel and hold the spindle, B, firmly in its place, free to rotate in the socket, *a*, and another one at the top of D, but not capable of shaking up and down; between an angularity on D, and the



friction-band, C, there is a bar, E, by moving which backwards and forwards, a rotary motion is given to the spindle and grating, *b*. It will be seen that the vessel is provided with two lips which retreat enough to admit of D being turned round and lifted off or on with ease and facility.

The process of egg-beating is a tiresome one; and many a cook, with aching wrist, will be glad to hear of this invention, which will beat six eggs in ten seconds. All that has to be done is to break the eggs into the vessel, draw the bar, E, backwards and forwards a few times, and the grating, *b*, from its shape, so thoroughly breaks up all portions of the eggs that they must be well and perfectly beaten. It will also whip cream and mix essences and ingredients for cooking equally and with speed, and from the simplicity and fewness of its parts, it can easily be kept clean. Another valuable use to which it can be put is that of churning, as from the shape of the grating, it effects the desired object (that of breaking up the milk or cream and uniting the particles of butter) much quicker and with more economy than the solid dasher; and as it has a reversible motion, the breaking-up effect of the opposite currents aids the formation of the butter. It can be used as an ice-cream freezer by merely placing it in a bucket of ice when, by moving E, the cream will be agitated and thrown in small particles against the cold surface, and quickly moved away, and other particles thrown against it; and as motion will be kept up during the whole time of freezing, there will be no lumps in the ice-cream. To all these uses and some more, can it be put with-without changing any of its parts or making the slightest alteration in their arrangement; so that it is one of the most useful and compact aids to domestic economy that we have ever seen, and can be made of any size from one quart to five gallons.

It is the invention of John B. Heich, of Cincinnati, Ohio, and was patented by him Dec. 15, 1857. He has assigned part of the invention to Richard E. Heich. and any further information respecting rights or the apparatus can be had by addressing Heich & Brother, Mechanics' Institute, Cincinnati, O. See their advertisement in another column.

Special Legislation on Patents.

Messrs. Editors—According to your request, and to correct any false impressions which may have been suggested to your readers by the article in your valuable paper of the 13th inst., I will make a short statement relative to the application of David Bruce for an extension of his patent type-casting machine. He had not received, during the term for which his patent was originally granted, anything like a fair equivalent for his labor, time, and ingenuity in getting up the patent, such benefits having been realized by others than the inventor.

Within the time prescribed by law, and according to the rules of the Patent Office, I drew up the necessary papers, which were duly filed and received at Washington. The Examiners reported favorably upon his application, and under the direction of the Commissioner, the necessary papers for the extension of his patent were prepared. These, by an oversight of a subordinate clerk, were put into the wrong "pigeon-hole," and were not found until a day or two after the expiration of the patent. This lapse of time only prevented the Commissioner of Patents from granting the extension of the patent. The inventor now, with the concurrence and approbation of the Commissioner, asks Congress to correct the mistake caused by the inadvertence and oversight of the clerk, and to carry out the original intention of the Commissioner, by granting him the extension. Mr. Bruce, with myself, concur with you as to the general principle of extending patents by Congress, but asks, in this case, special legislation to forward the ends of justice.

Alvah Traver.

New York, February, 1858.

Artificial White Light.

The light produced by wax and tallow candles, and by oil and gas under combustion, is yellow in color; this is the reason why we can scarcely distinguish between blue and green colors at night by artificial illumination. A correspondent of the London *Mechanics' Magazine* makes an inquiry regarding the possibility of obtaining artificial white light, by making it pass through a series of glasses tinted according to the prismatic spectrum, neglecting the yellow ray, of course. A very great improvement in the color of the artificial light could easily be effected by employing globes or shades of a very faint purple color. Purple is composed of the red and blue rays of the spectrum, which, properly combined with the yellow ray, produce white.

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